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THE SCOPE FOR RESEARCH IN THE INDIGENOUS SYSTEMS OF MEDICINE*

(With Special Reference to Indigenous Drugs)

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INTRODUCTION

In all countries with an ancient civilization *e.g.*, India, China, Egypt, etc., a system of medicine indigenous to the particular place exists and in some places (India, China), it is still catering to the needs of a large section of the local population. Due to the passage of times many changes have taken place, and though excellent records are available in such treatises as the Ebers Papyrus of Egypt (1500 B.C.), the PenT'sao Kang Mu of China (1597 A.D.) and the Ayurveda and similar treatises of India (1400 B.C. to 400 A.D.), the present indigenous systems of medicine actually practised in these countries cannot be said to be truly representative of the older systems as recorded in the books referred to above. Much empiricism and superstition have been absorbed into the original core of ancient medicine during the course of centuries. This is particularly true of Ayurvedic medicine in India. It is not my purpose, in a short lecture like this, to discuss the various systems of indigenous medicine all over the world but I intend to take up some aspects of the Indian systems of medicine as practised to-day in this country. There are many aspects of the question which I will have to pass over, as I wish to focuss particular attention on their Materia Medica—a field of study with which I can claim to be at least partly familiar. My remarks with regard to the scope for research in the indigenous systems of medicine will therefore refer primarily to the problem of indigenous drug research rather than to the various theories of the causation of diseases, method of diagnosis, etc., as enunciated in the indigenous systems of medicine.

SCIENTIFIC STATUS OF AYURVEDIC MEDICINE

Lack of knowledge of the Sanskrit language, in which almost all the books on Indian medicine are written, has prevented myself and many other interested students in the detailed study of the original classics and much of the information that is available to-day from authoritative books are largely compilations handed over from one book to the other. My information is mainly derived from the English versions published by such oriental scholars as Wise[1], Royle[2], Wilson[3], Ainslie[4], Jolly[5], Hoërnle[6], Sen[7], Hessler[8], Mukhopadhyay[9], Bangasena[10], Roy[11] etc. The historical and scientific background of Indian medicine, as it appears from the sources referred to above, is given below (see Table I) which will show the present position of the indigenous medicine *vis-a-vis* its origin from the time of 'Rig Veda' (200 B.C.), where the earliest mention of the medicinal use of plants is found. It is in the 'Ayurveda' that definite properties of drugs and their uses have been given in some detail. There are 8 Sections of this book dealing with major and minor surgery, general medicine, psychological medicine, pediatrics, toxicology, chemistry and sex psychology. Particular mention may be made of the chapters on general medicine, toxicology, pediatrics and sex psychology, which have been considered by competent scholars as containing some keen observations which have been fully borne out by modern scientific medicine. 'Susruta' and 'Charaka' are the next two important outstanding contributions on Hindu medicine, of which 'Susruta' is primarily a treatise on surgery and 'Charaka' a treatise on medicine and materia medica. In Susruta, 300 bones and 200 joints have been described and dissection of the human body for gaining knowledge of visceral and surface anatomy was enjoined. The description of the menstrual cycle and the instructions regarding personal hygiene to be observed during this time seems quite modern, even though these instructions were recorded near about the dawn of the Christian era. 'Charaka' further prescribed calcium-rich diet during the menstrual period and also described the management of delivery and the use of forceps. The operating room, according to him, should be clean and fumigated by disinfectant vapours before and after all operations. There is mention also of the use of a volatile anaesthetic. The technique described for operations of skin grafting, cataract couching, amputation, rhinoplastry, hernia, etc., are extremely instructive even to any student of modern surgery.

In 'Charaka', about 2000 vegetable remedies are described together with a few mineral drugs and animal remedies. The soil, the season and the gathering time of individual drugs of the vegetable kingdom are mentioned with such meticulous details that even modern students of botany can gain useful information from these descriptions. The methods of administration of drugs are fully described and bear a striking resemblance to those in use at the present time; even administration of medicaments by injection did not fail to attract attention. Natural and artificial feeding of the child, dental hygiene, methods of palpation of the

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radial artery, preventive medicine, etc., are to be found in various sections of the book.

Following Charaka and Susruta, a number of other valuable books on medicine and surgery were published. These are mostly of the nature of 'special' treatises, some dealing with anatomy and dissection of the human body in more detail (*Vagbhatta*) and others describing epidemics and their prevention (*'Chakradatta'*) [See Table]. It is not necessary to go into more details regarding the numerous evidences of the high

TABLE I—HISTORICAL & SCIENTIFIC BACKGROUND OF INDIAN MEDICINE

Pre and Early Christian Era	*Up to about 1200 A.D.*	*After 12th century A.D.*	*18th century to date*	*Remarks*
Rigveda (2,000 B.C.?) —First mention of drugs. *Atharvaveda* (2,000-1,000 B.C.?) —Mention of several drugs plus charms and amulets in the treatment of diseases. *Ayurveda* (1,000-600 B.C.?) (Science of life) (*a*) *Salya Tantra* (Major Surgery) (*b*) *Salakya Tantra* (Minor Surgery) (*c*) *Kaya Chikitsa* (General Medicine) (*d*) *Bhuta Vidya* (Mental Diseases) (*e*) *Kumara Bhritya* (Pediatrics) (*f*) *Agada Tantra* (Toxicology) (*g*) *Rasayana* (Chemistry) (*h*) *Baji-karana* (Sex Psychology) *Charaka Sahmita* (1,000 B.C.-100 A.D.?) Vegetable, Mineral & Animal Drugs — 3000 remedies mentioned. Preventive Medicine, Dental Hygiene, Dietetics, Pulse in Disease, etc., recorded. *Susruta Samhita* (800 B.C.-400 A.D.) (*a*) *Sutrasthana* (*b*) *Nidana Sthana* (*c*) *Sarira Sthana* (*d*) *Chikitsa Sthana* (*e*) *Kalpa Sthana* (*f*) *Uttara Sthana* Bhagbhatta, Madhavakara, Chakradatta, Sarangadhara, Kanada, Sankarasen, Bangasena (Between 400 B.C.-200 A.D.?) Bhojaprabandha—(50 B.C.-300 A.D.)	Good progress. Contact with Egyptian Medicine | Greek Medicine | Roman Medicine | Arabian Medicine (*Charaka Samhita* translated in Arabia) | Chinese Medicine	Period of decline & compilation | Further mutilation of literature during invasion of India by Greeks, Scythians & Mohammedans | Priesthood controlling medicine. | Dissection given up, possibly as a result of the Buddhistic doctrine of *Ahimsa*. | Influx of Arabic Medicine with the advent of Muslim conquerors	European invasion and advent of Western Allopathic System of Medicine.	Indian Medicine is a mixture of Ayurvedic, Unani-Tibbi & Allopathic Medicine | A rich store of combined Materia Medica is therefore available for study. | Promising field as fruitful results are already obtained.

standard of the ancient Hindu medical culture. The examples cited will show that ancient Indian medicine was not based on pure empiricism, but was permeated with a scientific spirit, as evidenced by a desire, by observation and experiments, by induction and deduction, to probe the secrets of nature and to build thereon a rational system of medicine.

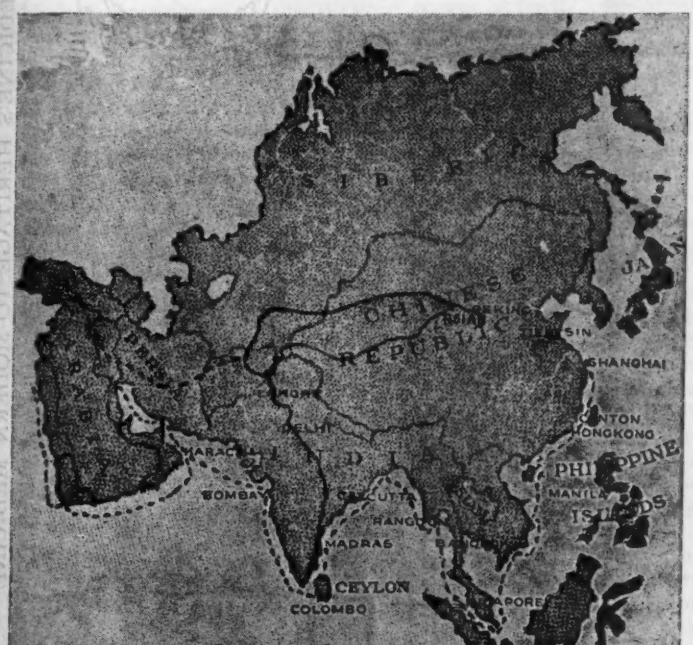
RISE AND FALL OF INDIAN MEDICINE

From the time of 'Charaka' and 'Susruta' up to about 1200 A.D., Hindu medicine made good progress so much so that it not only became the acknowledged system of treatment all over India then known, but its influence extended to Egypt, Greece, Rome, Arabia and China. Available evidences indicate that the knowledge of the Hindu physicians in the domain of drug therapy and toxicology during this period was far in advance to that of others. Charaka's fame travelled into Arabia and at least part of his treatise on medicine appears to have been translated into Arabic. Avicenna, the renowned writer on Arabic medicine, quotes him as 'Scirak' and Rahazes, who was prior to Avicenna, calls him 'Scarak'. The early contacts of India and China are recorded in Buddhistic works. There is also evidence to show that external trade existed between India and Rome for many centuries and this drug trade was in such enormous proportions that Pliny actually complained of the heavy drain of Roman gold to India in buying costly drugs and aromatic spices. There is reason to believe that many Greek philosophers like Paracelsus, Hippocrates and Pythagoras actually visited the East and helped in the transmission of Hindu culture to their own countries. Jacolliot remarked "India, that immense and luminous centre in olden times, was in constant communication with all the people of Asia,

and all the philosophers of antiquity went there to study the science of life" (see Map 1).

After this period however, the glories of Hindu medicine rapidly declined. During the invasion of India by the Greeks, Scythians, and Mahammedans successively, a good deal of the existing Ayurvedic literature was mutilated or lost. Priesthood became the repository of all the medical knowledge and this probably was largely responsible for the introduction into Ayurveda of many charms and amulets. Gradually, as a result perhaps of the Buddhistic doctrine of 'Ahimsa', touching of the dead body was considered sinful and dissection as a basis for the study of anatomy and surgery was given up. With the advent of the Muslim conquerors, Arabic system of treatment (Unani, Tibbi system) became the State system of relief and the Ayurvedic system was pushed to the background. During this transition period, there was a great deal of intermingling of the materia medica of the Ayurvedic system and the Unani-Tibbi system. With the advent of the Europeans the decline of the older systems of medicine was marked with still further interchange of materia medica. The present indigenous medicine therefore is a hotchpotch produced by the irregular mixture of the ancient Ayurvedic medicine with Unani-Tibbi and Allopathic systems. Though hardly anything of the original system is existing today, the process of intermingling through centuries have left India with a rich heritage of a very varied Materia Medica, which is well worth careful investigation.

MAP I—OUTLINE MAP OF EARLY BUDDHIST, ARAB AND WESTERN TRAVELLERS

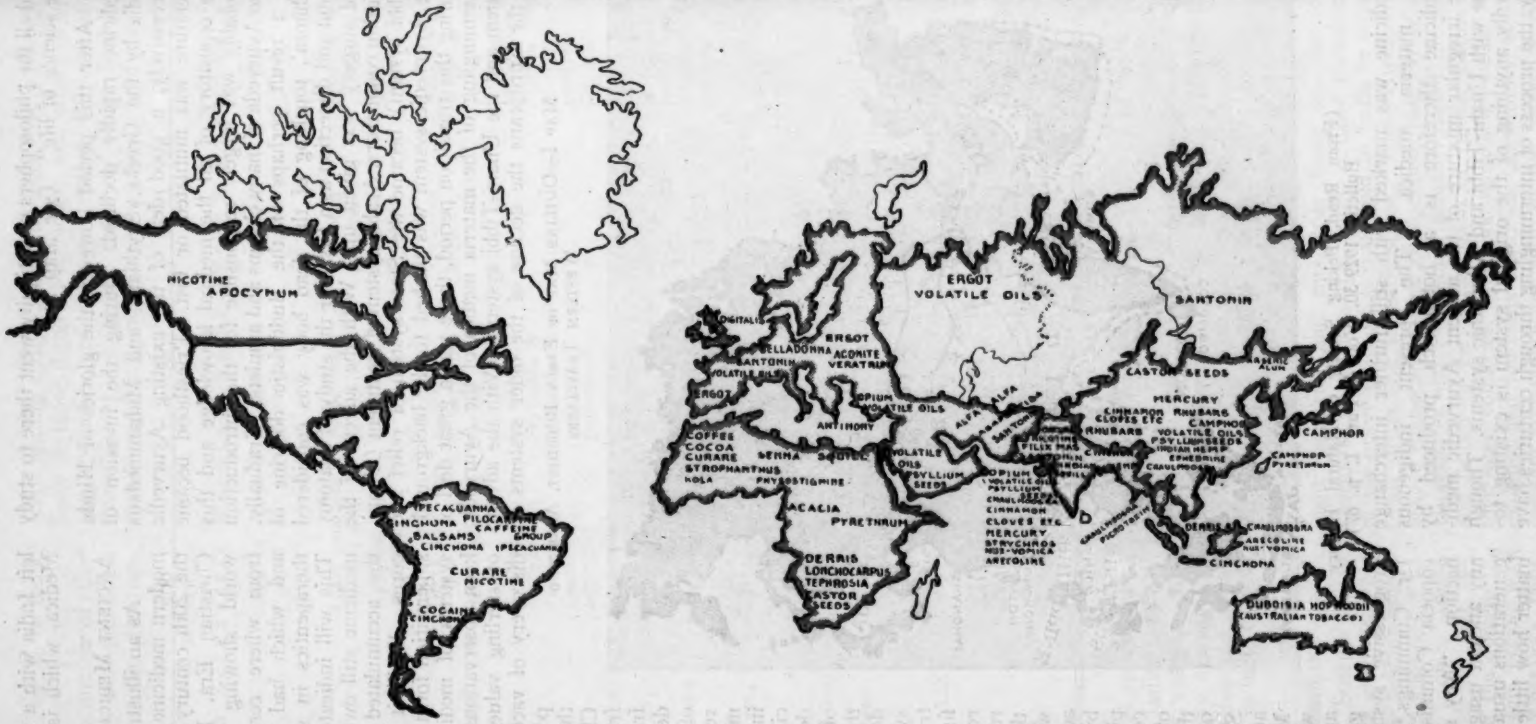


(From Read, Peking Society of Natural History Bulletin 1929-30, Vol. 4, Part I, p. 67)

ANCIENT MEDICINE'S HERITAGE TO MODERN MEDICINE

As an illustration of the extent of indebtedness of modern medicine as practised in the second quarter of the 20th century to ancient medicine of pre-and early Christian Era, I have drawn a drug map of the world showing the remote corners of the globe from where certain drugs were originally derived and which had since been incorporated in modern therapeutics in some form or other (see Map II). This will indicate in no uncertain terms that modern medicine still owes much to the people of the past for the accumulated knowledge of many remedies and cures. While it cannot be denied that empiricism and superstition form a large part of the ancient indigenous systems of medicine, there are simultaneously many keen observations and experiences recorded which are of sterling value. An example can be found in the discovery of vaccination for the prevention of Small-pox. Early records definitely indicate that Indians and possibly also the Chinese knew about the immunity from Small-pox that could be attained from the inoculation of Cow pox debris. In fact, Jenner, the discoverer of vaccination, obtained the information regarding immunity from the milk-maids and then conceived the idea of inoculation, which revolutionized medicine of the 18th century (1796). This does not however minimise the value of Jenner's discovery, but only shows that many apparently non-scientific doctrines and records of the indigenous system might possess a core of real truth, which can be analysed and confirmed by modern science. It has been repeatedly seen, particularly in the realm of ancient Materia Medica, that there are many century-old remedies which fully deserved the reputation accorded to them as 'cures', when judged by the critical yard-stick of modern pharmacology and therapeutics. A very convincing example is the rediscovery of Ephedrine and Tubo-Curarine from the ancient Chinese materia medica of 9000 years ago and the African and South American folk-lore medicine of at least 2,000 years old respectively. Many such examples can be cited which will show the wisdom contained in the ancient systems that can still be gathered and absorbed into the modern progressive system of medicine. A quotation from Dr. Cummings,[12] ex-President of the U.S. Pharmacopoeia Commission, is considered apt in this connection. "Any system of medicine or for that matter, any ancient usage or custom that has held its own for generations usually has something at the back of it, no matter how little it appears to be supported by modern

Map II—Folk Medicine's Heritage to Modern Medicine



South America—Caffeine group of drugs—Brazil. Cocaine containing drugs—Western slopes of Andes. Curare. Nicotine containing plants. Jaborandi—Brazil. Ipecacuanha—Brazil, Venezuala Columbia, Guiana. Cinchona—Peru, Andes, Ecuador. Balsams—Peru. Capsicum. Copaiba—Brazil. Guaiacum. Ipoema—Andes. Jalap—Andes. Krameria—Peru. Quillaia—Chile, Peru. Theobroma—Brazil, Ecuador. Boldo—Chile. Sabadilla—Venezuala. Araroba—Brazil. Abrus—Brazil. Agropyrum etc.

North America—Nicotine. Apocyanum. Aconite, Cascara Sagrada, Chenopodium. Colophony. Eonymus, Gelsemium, Hamamelis, Hydrastis, Lobelia, Podophyllum, Prunus Serotina, Senega. Serpentary, Viburnum, Aletris, Sabadilla, Dulcamara. Baptisia. Absinthum. Agropyrum.

Europe—Belladonna. Ergot—Spain, Germany, Russia. Aconite, Veratrum, Santonin—Mediteranean area. Antimony—Greece. Volatile Oils—Spain, Russia, Bulgaria. Digitalis—Gt. Britain, Calchicum—Central and Southern Europe, Colophony. Conium—Great Britain. Gentian—Central Europe & Spain. Hyoscymus, Scoparium—British Isles. Tragacanth—Greece. Valerian—Gt. Britain, Holland and Belgium. Absinthium. Agropyrum, Allium, Dulcamara.

Africa—Coffee, Kola, Cocoa. Curare. Strophanthus. Calabar bean. Senna—North Africa. Acacia. Pyrethrum—Kenya Squill—Egypt. Derris, Tephrosia. Castor seeds. Calumba—East Africa. Colocynth—North Africa. Myrrh. Quassia. Theobroma. Zingiber. Amygdala Amana — Morocco. Calotropis. Embelia—East Africa. Anise—Egypt.

Asia—Nux Vomica—India, East Indies Picrotoxin—Thailand. Camphor—China, Japan, Formosa. Opium—Asiatic Turkey, India. Alfa—Persia. Asafœtida—Persia, Afghanistan. Nicotine—India. Lobelia. Ephedra—China, India. Arecoline—India, East Indies. Datura—India Squill—India. Pelletierine—India. Filix Mas—India. Santonin—Asiatic Russia, India, Afganistan. Chaulmoogra—India, China, Malay, Thailand. Cinchona—Java, India. Abstinthium. Anise—Asiatic Turkey. Indian Hemp—India, China. Castor seeds. Rhubarb—China, India, Tibbet, Nepal. Cinnamon, Cloves, etc.—China, India. Mercury—India, China. Derries—Malay. Psyllium seeds—Arabia, India, China. Aconite. Adhatoda—India. Agar—Japan. Alstonia—India, Burma. Cassia—India. Catechu—Malay, India. Chireta—India. Colocynth—Syria, Persia, India. Aristolochia—India. Bael—India. Kino—India. Cubeb—Malay. Holarrhena—India. Isphagula—India, Persia. Myrrh—Arabia. Tragacanth—Persia, Turkey. Myristica. Guaiacum. Gamboge—Thailand. Calotropis—India, Ceylon. Agropyrum. Embelia—India. Dulcamara.

Australia—Duboisia Hopwoodii (Australian Tobacco) Alstonia Constricta. (Australian fever-bark) Agropyrun Eucalyptus.

science. For generations the fact that the American Indian hunters always chose the liver and the white-men the meat, when the animals they trapped or killed were divided, was quoted as proof of their ignorance and primitive development, yet in the last 5 years, the great nutritive value of liver has come to be recognized and is universally prescribed in cases of anæmia".

Problems of Research in Indigenous Systems of Medicine

One of the greatest difficulties of scientific research in the field of ancient medicine is that many learned exponents of these systems attach a great deal of sentiment to the teachings contained in the pages of the older treatises such as Charaka and Susruta, and consider these as 'inspired doctrines' incapable of improvement by modern researches and the 'man-made' science of the 20th century. Any effort at critical evaluation, particularly by those not belonging to the Ayurvedic system of medical practice, is considered as nothing but therapeutic nihilism. This School of thought favours the wholesale revival of the old systems with all their paraphernalia of 'compounded medicines', 'crude methods of pharmacy', 'polyglot recipes', etc., Modern practitioners of the Western system of medicine, on the other hand, have frequently pooh-poohed the idea of research in the indigenous systems, which are considered to be nothing more than an assemblage of facts and informations based largely on folk-lore, and which does deserve the serious consideration of modern science. What is needed to-day in any discussion about ancient systems of medicine is not sentimental or extremist thinking but a balanced, critical and open-minded attitude which would permit a reasoned appraisal of the teaching and observations of the indigenous systems and adoption into modern medicine of those legacies only which can be fully supported by modern science. A stagnant and static system for well nigh 1500 years is bound to get mixed up with many things of questionable value and doubtful utility. There is no harm in recognizing this and devising ways and means of revitalizing indigenous systems of medicine, taking full advantage of the modern developments in physico-chemical and biological sciences. Only by such means can any progress be achieved.

Planning of Research in the Indigenous Materia Medica

The question now arises as to what is the best way of investigating the rich materia medica left to us as the heritage of the indigenous systems of medicine. From the empirical knowledge of a crude drug (stated to be a good remedy) to its use in rational scientific medicine, is a long way and must pass through (1) Botanical indentification, (2) Chemical examination, (3) Pharmacological and toxicological assay and (4) Clinical trials (see Schematic Programmes, Procedures 1 & 2, p. 264). All stages through which modern scientific investigation should proceed are time-consuming and require a 'team-work' of several groups of scientists, each experts in their own fields of specialization. No haphazard methods of approach by individuals or even single institutions are likely to succeed.

In India, study of the indigenous materia medica according to modern scientific lines (as distinguished from purely 'clinical trials' carried out in the late 19th and 20th century) was first started at the School of Tropical Medicine, (Chopra School) and at the Haffkine Institute, Bombay, (Caius, Mhaskar and others) in the second decade of this Century. The problem was approached from the following angles:— (1) Investigation of the possibilities of utilisation of pharmacopoeial and allied drugs growing in India in place of the 'official' ones mentioned in the British Pharmacopoiea and other recognised pharmacopoeias. This led to the finding of several allied species of plants of known value, such as the various species of Hydnocarpus, Indian Senega, Indian Digitalis, Belladonna, Squill, Gentian, Rhubarb, etc., as substitutes for the corresponding pharmacopoeial species. (2) The trial of specifics for various diseases, such as Holarrhena, Rauwolfia, Butea, Alstonia, Caesalpinia, Adhatoda, Punarnava, Melia, etc., for dropsy, dysentery, malaria, etc. Some of these have received widespread attention and are adopted in modern medicine while others have been discarded as being of little value. (3) The search for new active principles, especially drugs of alkaloidal character, glucosides, tannins, etc. such as Ephedrine, Ajmaline, Berberine, etc. (4) New sources of therapeutic agents of proven value, such as the various solanaceous plants used in the preparation of atropine, and new sources of santonin, ephedrine, etc.

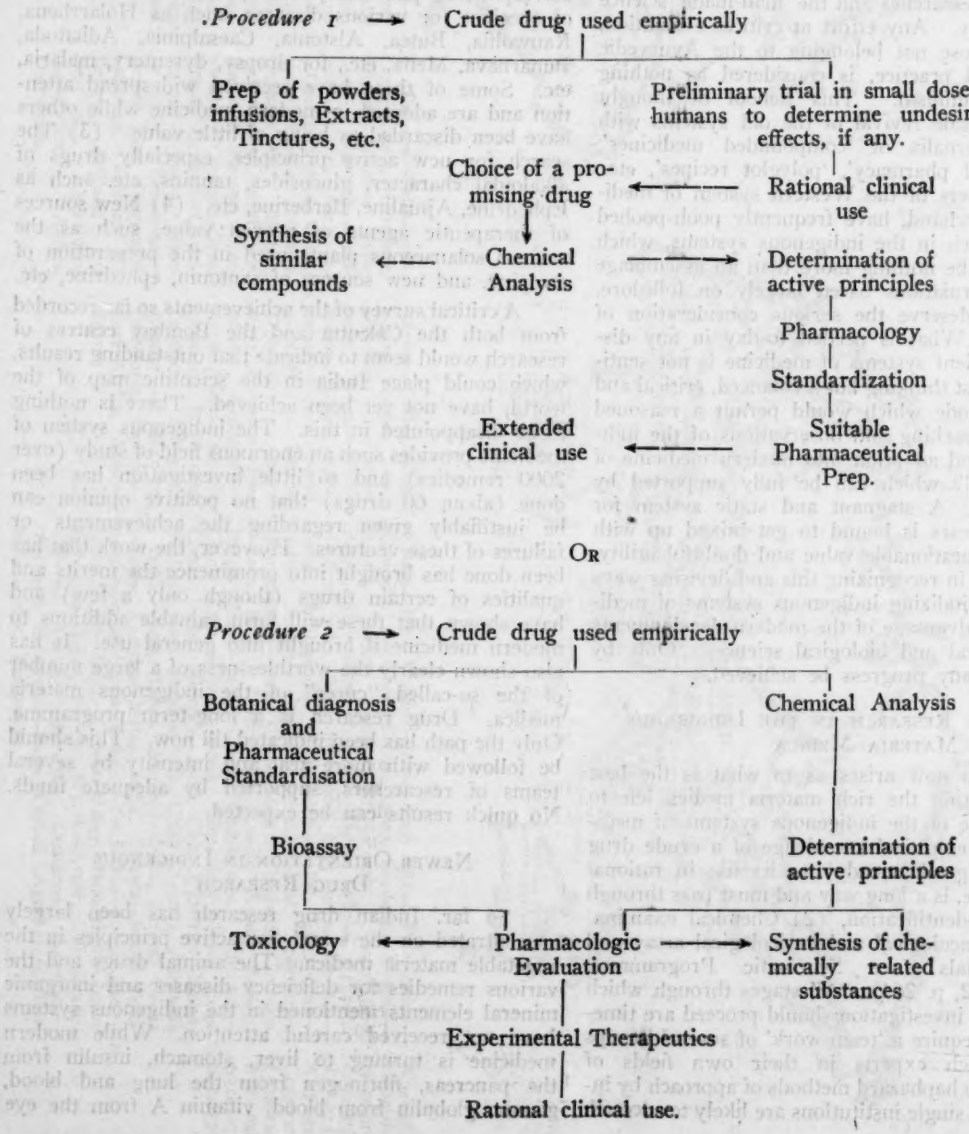
A critical survey of the achievements so far recorded from both the Calcutta and the Bombay centres of research would seem to indicate that outstanding results, which could place India in the scientific map of the world, have not yet been achieved. There is nothing to be disappointed in this. The indigenous system of medicine provides such an enormous field of study (over 2000 remedies) and so little investigation has been done (about 60 drugs) that no positive opinion can be justifiably given regarding the achievements or failures of these ventures. However, the work that has been done has brought into prominence the merits and qualities of certain drugs (though only a few) and have shown that these will form valuable additions to modern medicine if brought into general use. It has also shown clearly the worthlessness of a large number of the so-called "cures" of the indigenous materia medica. Drug research is a long-term programme. Only the path has been indicated till now. This should be followed with more zeal and intensity by several teams of researchers, supported by adequate funds. No quick results can be expected.

Newer Orientation in Indigenous Drug Research

So far, Indian drug research has been largely concentrated on the search for active principles in the vegetable materia medica. The animal drugs and the various remedies for deficiency diseases and inorganic mineral elements mentioned in the indigenous systems have not received careful attention. While modern medicine is turning to liver, stomach, insulin from the pancreas, fibrinogen from the lung and blood, gamma globulin from blood, vitamin A from the eye

and fish liver oils, adrenaline, thyroxine, parathormone, plasma, serum, vaccines, choline, etc., it is remarkable to find that many animal tissues, and organic glands such as, blood, bones, neck glands, heart, liver, lung, marrow, kidneys, pancreas, bile, urine, etc. had been freely used in the indigenous systems of medicine. Mention has also been made of a long list of crude remedies for nightblindness and a condition akin to 'beri-beri', which would tend to indicate that the ancients had made keen observations on conditions produced by vitamin deficiencies. Similarly, the recommendation for the use of a large number of greens and other plant sources containing vitamin C, such as capsicums, brassicas, pumelo and mustard leaves, in the diet of certain types of dental affections and skin conditions cannot be brushed aside as simply fortuitous coincidence. Indigenous remedies claiming to have power to increase human fertility are often associated with magical ideas but in view of the increasing volume of recent scientific work in this field, it is hoped that information may be forthcoming whereby these claims can be at least partly substantiated. Present knowledge justifies to some extent the claims for human placenta, marrow of animals, pig's pancreas and testicles, and pregnancy urine as aphrodisiacs and sex stimulants. The importance of inorganic

SCHEMATIC PROGRAMMES NECESSARY IN THE EVALUATION OF A DRUG



mineral elements in foods and their function in maintaining body metabolism was apparently recognised and would be seen from the fact that many recipes are described containing 'bone powder', 'bone marrow', etc. which are rich in calcium salts. Many foods rich in copper, and iron in organic form were recommended in diseases which appear to be conditions caused by anaemia or pregnancy. Deficiency of iodine was definitely known to cause goiter and this has been used repeatedly in the treatment of 'swelled neck'. All these call for a new study of the old empirical methods from the angle of modern organo-therapy, deficiency diseases and imbalance of metabolism which has not so far been done (Read[13]). Such evaluation by new standards of modern physiology and biochemistry of both foods and drugs (as no distinction is made between foods and drugs in ancient medicine) is likely to lead to further interesting results than have so far been obtained through a study of only the active chemical principles of drugs and their pharmaco-therapeutic application. Maintenance of a healthy balance of the normal body processes is just as much a function of medicine (and this aspect was more important in ancient medicine) as drastic curative treatments through the introduction of potent foreign substances into the system.

How to Effect Revitalization of Ancient Materia Medica

From the above, it would appear that there is a vast field for research and investigation in the indigenous materia medica. Though admirable efforts have been made by isolated workers or by one or two institutions, only the fringes of a complicated problem have so far been touched. Modern science and its methodology should be applied with patience and sympathetic understanding to unravel the truth of early teachings and clear away the unnecessary mass of foliage which to-day covers some of the luscious fruits of ancient medicine. A free India, aware of the tremendous political significance of indigenous medicine, cannot afford to neglect one of her great legacies of the past, which when properly harnessed, can deliver the greatest good to her suffering masses.

Establishment of a Central Institute for Drug Research—A good way of approaching the problem of indigenous drug research is through the creation of a 'Central Institute' specifically for drug investigation in India, as has been suggested by the writer[14] in 1945. In this institution, arrangement should be provided for the study of indigenous drugs under co-ordinated supervision from all angles—botanical identification, chemical analysis including isolation of active principles, pharmacological study of the active principles and determination of their poisonous properties, if any, on the human system, and clinical trials under controlled conditions in human patients. The co-operation and collaboration of the learned exponents of the Ayurvedic and Unani-Tibbi systems should be sought to initiate newer lines of investigation which appear more promising than others. Sanskrit and the Arabian and Persian treatises on ancient medicine should be read and translated from the original by those versed in modern medicine, if only to check the many mistakes which have crept into modern books. In addition to a 'Central Institute', peripheral units on more or less similar lines on a less ambitious scale should also be set up in various centres of active work in the Universities and other research institutions. Each centre should be permitted free scope, the central organization preventing duplication of efforts and maintaining useful liaison to guide work in most profitable channels. For such a project, funds would be needed but the State should come forward to finance the scheme, aided wherever possible by private munificence.

Compilation of an Indian Pharmacopoeia—It has been repeatedly stated by competent scholars of ancient systems of medicine that the materia medica, particularly the vegetable herbals, constitute the richest heritage and this is a mine of knowledge which needs probing into more enthusiastically than other branches. A natural corollary to successful work in this field is the compilation of an Indian Pharmacopoeia which will contain all indigenous drugs of value, properly standardised for use on an extensive scale by modern physicians, side by side with up-to-date chemotherapeutic and synthetic remedies of the Western system of medicine. A preliminary effort in this direction has already been made by the Government of India in publishing the 'Indian Pharmacopoeial List'[15] as a supplement to the British Pharmacopoeia, 1932. Such work needs strengthening and further rationalisation by constant additions and deletions, as results of active research in the field of indigenous drugs become gradually available. Once a standardised Indian Pharmacopœia can be compiled and is made acceptable to all practitioners of medicine in India irrespective of whether he belongs to the Ayurvedic, Unani or Allopathic systems, more indigenous drugs would automatically be employed in therapy with resulting cheapness in the cost of medical care. For the treatment of 'minor maladies', which constitute by far the largest number of sicknesses, indigenous drugs and their comparatively crude preparations are just as effective as many costlier medicines of the Western Pharmacopoeias. However, as indigenous drugs contain hardly any worth-while remedies (except quinine) for protozoal, bacterial or virus diseases, the Indian Pharmacopoeia must also include remedies of the Western system which have ushered in a new chapter in the cure of many diseases caused by such germs. A National Pharmacopoeia which leaves such internationally known specifics as sulpha drugs and penicillin out of consideration will not be worth its name and will do incalculable harm to its suffering millions.

Unification of Indian Systems of Medicine—Once an agreed and standardised Indian Pharmacopoeia is produced and is maintained in a 'living' condition by worth-while additions and deletions at regular stated intervals through contributions emanating from the nation's own research centres in indigenous drugs, the century-old therapeutic barriers between the Ayurvedic medicine, Unani-Tibbi medicine and Western (Allopathy) medicine would disappear. The unitary concept thus brought about in the therapeutic field would permit the exponents of all the medical systems in India to look to the medical theories of other systems

with open minds and through the eyes of modern science. It would not take long for the learned followers of the Ayurvedic and the Unani systems to realise that many of the ideas and practices recommended in their century-old systems cannot justifiably be supported by modern physico-chemical and biological sciences. Modern scientific medicine has explained the causation of diseases such as malaria, kala-azar, leprosy, tuberculosis, pneumonia, filariasis, etc., etc., with such clarity and convincing proofs that it is no longer possible even to indirectly take shelter under the 'Tridosha' (*Vayu, Pitta, Kapha*) theory of disease origin as enunciated in the Ayurvedic treatises. The soil (body and its metabolism) is undoubtedly important in disease processes and this was rightly emphasised by the Indian systems of medicine, but it is a far cry in the 20th century not to recognise the 'seed' or the 'germ theory' of disease. In fact, many practitioners of the indigenous systems are so much influenced with the modern teachings of Anatomy, Physiology, Biochemistry, Pharmacology and Pathology that they are actually supporting instruction in these sciences to their juniors and in their medical institutions. To inculcate the principles of modern science with all their analytical methods and precision and recording of experimental observations, and then to ask these students to pin their faith, out of reverence only, to the doctrines of 2000 years ago,—many of which cannot be proved by physico-chemical and biological sciences of to-day—is to ask something which can never be achieved. The result of this hotch-potch teaching is the production of irrational practitioners who have no allegiance to any science but who recede more and more into the domain of quackery and charlatanism. Science is one and indivisible. To halt the progress of non-scientific medicine in India, the inevitable thing to do is to bring about a fusion of all the indigenous systems of medicine in such a way as to retain the best of every system and build a consolidated system of modern medicine thereon.

Adoption of 'Modern System of Medicine' as State System of Relief

Medicine has no limits and boundaries and has progressed through centuries by looking 'backward' as well as 'forward'. The most suggestive path of progress therefore is to study the methods of old systems of medicine side by side with modern science. The scientist knows more than any other how to keep an open mind and if he is permitted to sift the claims of all systems of Indian medicine with the sieve of 20th Century science, only the real and worth-while remedies will be left which will be available for the alleviation of human suffering not only in India but also in other parts of the world. Distinctions, often drawn between Indian system of medicine, Chinese system of medicine, Arabic medicine, Allopathy, etc. are really superficial. Modern medicine stands aloof with open arms and adopts everything of value from all systems—ancient or recent, without distinction—and builds on all such data a system which has international application and significance. Time has now come when India should consider the adoption of 'modern medicine' (not Western Medicine or Allopathy), in place of the various older and time-honoured systems (Ayurvedic, Siddha, Unani, Tibbi, etc.) as the recognised State system of medical relief. It is hoped such a system could be evolved by joint effort of the learned exponents of all the indigenous systems of medicine in India. The royal road to this consummation is through more intensive indigenous drug research on modern scientific lines.

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CHEMOTHERAPY OF MALARIA WITH SPECIAL REFERENCE TO PALUDRINE

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Malaria parasites occur coterminous with man in the earth except where conditions are unsuitable for their transmission. Malaria has been a great menace to the health and happiness of mankind. It has influenced the course of war and shaped the forms of civilization. The search for effective therapeutic measures against malaria began a long time before the conception of chemotherapy was crystallized. Newer remedies are being found out but the pursuit of still better drugs continues, for the problem is pressing and urgent.

Mortality and Morbidity with Malaria

Malaria has a high mortality rate. The question of morbidity and relapse is no less serious. It bequeathes to the patient an impoverished constitution which makes him an easy prey to other infections. In India, malaria is responsible for about 1,000,000 deaths per annum. It is difficult to calculate the rate of morbidity but about 30 per cent of 400,000,000 people of our country do suffer from malaria annually. The sickness and disablement of so large a number of persons have an adverse effect on the economic aspect, productivity and ultimate prosperity of the country. At the present moment, it is not possible to organize a planned programme of preventive measures against malaria. Hence the immediate solution lies in finding a suitable curative drug within the easy reach of purse and hand of the common man of this land.

Common Antimalarial Drugs—Quinine, Pamaquin (Plasmoquine), Mepacrine (Atebrin)

Quinine—Although cinchona bark was introduced to Europe as early as 1640, the alkaloid quinine was isolated in 1820 and was found useful in ague.

Quinine is used in the form of salts, the base being insoluble. When administered orally it is readily absorbed. It may be used parenterally but intramuscular injection may cause necrosis of local tissues.

It acts against the asexual forms of all species of human malaria but does not affect the gametocytes of malignant tertian, although it has a limited effect on the gametocytes of benign tertian and quartan. It will not prevent an attack even if administered during the incubation period, but causes disappearance of parasites from the circulation and abates and controls the clinical picture so long the drug is continued. It may tide the patient over the period of liability to relapse but does not completely eradicate the parasite from the system.

It is not very toxic and rarely serious symptoms appear which are due to idiosyncrasy. When however it is given intravenously it depresses the heart and causes a profound fall of blood pressure.

Pamaquin—Prior to the world war of 1914-18, the only specific antimalarial drugs available were the cinchona alkaloids, of which the most generally used was quinine. The shortage of quinine in Germany during this period stimulated the development of synthetic antimalarials. Of these pamaquin (plasmoquine) was produced in 1925. It is a salt of synthetic quinoline derivative and was found effective against the asexual forms of benign tertian and quartan malaria, but the doses which produce this effect are toxic. It has remarkable effect on the gametocytes of *P. falciparum*, which neither quinine nor mepacrine possess. It is of great value in preventing relapse and for this purpose it is prescribed with quinine. Unfortunately, only a small margin of safety exists between the therapeutic and toxic doses. Its use as a curative agent has been practically given up.

Mepacrine or Atebrin—This was produced in 1932 and was found effective in bird malaria. It is the dihydrochloride of acridine derivative. Since it is absorbed from the gastro-intestinal tract, it is commonly used by the mouth, while dimethanosulphonate may be used by injection.

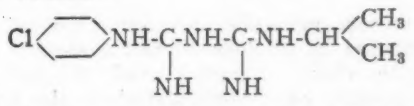
It acts on the asexual forms of all species of parasites, and influences the clinical picture but does not permanently eliminate the parasites. It has no effect on the gametocytes of malignant tertian infection.

Toxic effects are usually confined to some minor gastric and intestinal complaints, yellow colouration of the skin and sometime temporary mental derangement (psychosis).

The New Compound Paludrine

During the second world war an intensive search for new synthetic antimalarials was carried on both in U.K. and U.S.A. A team of chemists and biologists began in 1942 in U.K. the search for a new antimalarial drug and synthesized a large number of newer compounds and tested in experimental infection in chicks and birds. In 1944, the new substance "Paludrine" was discovered and found to be remarkably effective (Davey, Curd and Rose).

Paludrine is the biguanide of a pyramidine derivative as distinct from acridine and quinoline compounds. It is known chemically a (N_1-p-chlorophenyl-N_5-isopropyl biguanide) and has the following constitutional formula—



It is a base and forms salts such as the hydrochloride or acetate. The hydrochloride forms a stable salt which dissolves slowly in water giving a solution that may be boiled without decomposition.

Administered orally, Paludrine is rapidly absorbed and reaches maximum concentration in three hours. It is equally rapidly excreted but sufficient remains to augment an effective concentration on second administration. Concentration of Paludrine in red blood corpuscles is four times that in blood plasma.

In avian malaria, it has been found to have powerful action not only on the erythrocytic form of the parasites but also on the exo-erythrocytic forms. It does not destroy the gametocytes.

Biology of Malaria Parasite

To understand the exact mode of action of Paludrine in malaria it is necessary to discuss the cycle of events which follow from the time of bite by an infected mosquito till the appearance of clinical symptoms and presence of parasite in the peripheral blood.

The malaria parasites of man are protozoa. They are characterised by an asexual development cycle (Schizogony) passed in the warm blooded host (man) and by a sexual extra corpuscle cycle (Sporogony) passed in the Anopheles mosquito.

The Anopheles mosquito becomes infected only on feeding an infected human being who has gametocytes in the peripheral blood. After the development of the parasite in mosquito is completed, the mosquito can transmit the disease to another human host through the bite.

The malaria parasites (Sporozoite forms) so introduced do not circulate in the blood but disappears from the general circulation. During this period of incubation, patients do not exhibit any symptoms or signs of the disease nor show any parasite in the blood.

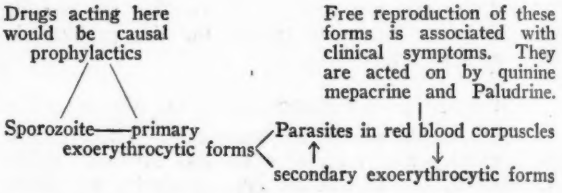
On an analogy to avian malaria, it has been suggested that the parasites so introduced enter the solid tissues in cells of the reticulo-endothelial system inside which they undergo a series of developmental changes—primary exo-erythrocytic phase. It has been suggested that no drug other than Paludrine has any effect on primary exo-erythrocytic forms.

After this period of incubation, the parasites come out of the endothelial cells and begin their erythrocytic phase. They enter into the red blood corpuscles within which a generation of parasite is formed leading from the trophozoite form to the segmented forms. The corpuscles containing the segmented forms (Schizonts) of parasites rupture ushering in the clinical picture and setting free the new merozoites to begin the next phase. This is possible if these merozoites are not killed or partially destroyed. In cases of relapse possibly the following cycle takes place.

The young merozoite on entering the endothelial cells continues its development as the secondary exo-erythrocytic phase. Parasites inside the endothelial cells of primary exo-erythrocytic phase also continue their development into the stage of secondary exo-erythrocytic phase. After a course of time, the parasites undergo certain changes in forms and are liberated in the circulation to enter the red blood corpuscles where they pass the erythrocytic phase of development. These erythrocytes rupture, liberate the parasites and produce the clinical picture of relapse.

The conception of primary exo-erythrocytic phase explains the enigma of incubation and of secondary exoerythrocytic phase that of relapse and recrudescence. The exoerythrocytic phase has been experimentally demonstrated in avian malaria, where malaria parasites were seen inside the endothelial cells of the brain in different stages of their development. As yet, malaria parasites in man has not been demonstrated to have such developmental phase inside the endothelial cells of man but there are sufficient grounds to postulate the existence of exoerythrocytic phase in human being.

The life cycle of the malaria parasite in the vertebrate host may be expressed diagramatically as follows:—


Drugs acting here would be causal prophylactics
Free reproduction of these forms is associated with clinical symptoms. They are acted on by quinine mepacrine and Paludrine.
Sporozoite——primary exoerythrocytic forms
Parasites in red blood corpuscles
secondary exoerythrocytic forms

Whereas mapacrine and quinine have no effect on the primary exoerythrocytic forms of any species of malaria parasite, Paludrine is effective against them in avian malaria, and by analogy from the results obtained in human malaria also.

Paludrine in Malaria

Thanks to the discoverer, Dr. Davey, who very kindly supplied us the drug both for experimental and clinical trial we have been able to use Paludrine on a large number of proved cases of malaria. The result of 50 cases which could be followed up for a prolonged period and were treated under strict supervision is summarised below:—

Average daily dose.	*Total dose for the course.*	*Day of disappearance of fever.*	*Day of disappearance of parasite*	*Relapse checked with periodic use.*
100 mg. to 200 mg.	300 mg. to 700 mg.	2nd day (90 p.c.)	2nd/3rd day (80 p.c.)	90 p.c.

It has been observed that a minimum dose of 100 mg. (1½ gr.) and a maximum of 700 mg. is required to make the patient fever free and parasite free, i.e. will produce clinical cure. In our series no toxic symptoms were observed except in a few cases slight nausea which is not felt when taken with a glass of water. It has been used in two cases of pregnant women without any untoward effect. It is generally given in tablets of 100 mg. (0·1 gm. or 1½ gr.) each twice a day for two to three days till the fever subsides.

In malignant malaria it will cause definite cure. But relapses may occur in benign tertian after a few

days when it may be used twice a week for 3-6 months to stop it.

Easy Availability and Low Price of the Drug—a Necessity

For tackling the malaria problem in India, the drugs should not only be effective but be easily procurable and be cheap.

For her people, India needs some 1,250,000 lbs. of quinine on a conservative estimate but the actual consumption is only 200,000 lbs. of which 70,000 lbs. are produced in this country. India with her small output of quinine has to depend on Java, which has the virtual world monopoly of quinine. This dependancy has proved risky in the past and is full of costly uncertainties in future.

The question of cost of treatment is no less important. To obtain even a 45 grains of quinine per patient, it will require a 15 gram per capita consumption, which is not always within the purchasing power and availability of an average Indian. Judged from all these points paludrine appears to us to be the drug of choice. It is cheap, it will be available for general use soon and so far as we have seen it produces no untoward symptoms even when used intravenously.

Conclusion

Paludrine like quinine and mepacrine destroys the asexual forms of benign tertian and malignant tertian malaria. A single dose (1 to 3 tablets) will often control the clinical attack in both these infections. It is the only drug which will with complete safety ensure causal prophylaxis against malignant tertian malaria, having a definite lethal action on the pre-erythrocytic forms. Though it does not destroy gametocytes, mosquitoes feeding on individuals taking the drug are unable to transmit the infection. It will effectively suppress all forms of malaria when given in a single dose once, or at most, twice weekly. It is remarkably free from toxic manifestations, the margin of safety being greater than with any other antimalarial drug.

As regards the prevention of relapse, Paludrine possesses little if any advantage over other antimalarial drugs. Since, however, the occurrence of a relapse can be prevented by administering one tablet (100 mg.) of the drug twice a week without any ill effect to the patient, there seems no reason why this should not be continued until the infection has died out completely.

[Chaudhuri tried paludrine in a series of 43 cases. The following regimes of treatment were tried: I. One tablet (100 mg.) three times a day for four days. II. A single dose of 3 tablets. III. A single dose of one tablet. The average effect of treatment was to bring (1) the temperature to normal in 53 per cent of the cases in 3 days and in 95 per cent cases in 4 days and (2) to cause disappearance of the parasites in 67 per cent in 3 days and 93 per cent in 4 days. Gametocytes especially the crescents remained unaffected. In two cases of falciparum malaria schizonts were seen in the peripheral blood after paludrine administration. Chaudhuri R. N.—*Indian M. Gaz.*—**82**: 139, 1947.—Editor, *J. Indian, M. A.*]

DIAGNOSIS OF EPILEPTIFORM CONVULSIONS

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In perusing case records of patients eventually boarded out of the service with a diagnosis of hysteria, motor-convulsions, one often sees that both the physician and the psychiatrist were in doubt as to whether the condition was epilepsy or hysteria. After a varying period of observation in hospital unless the patient has definite epileptic fits he may be regarded as hysterical and disposed of accordingly. Should the patient then turn out to be a true epileptic, it is important to realise that not only injury (organic trauma) may result, but psychological trauma also. The patient may have received superficial psychotherapy with the reassurance that once his mental conflict is solved the fits will not recur. The psychosomatic disturbance of epilepsy may then be palliated and the patient actually improve until, one day, he throws another fit. His confidence vanishes together with whatever plans he made for himself and he slumps into depression. Now, neither the physician nor the psychiatrist will find him an easy patient to convince, for he is distrustful and possibly even negativistic.

In the absence of facilities for electroencephalography, the Pitressin Hydration Test may be found useful.

The following is an illustrative case:

Case Report

Sgt. G.Y.; a regular soldier; aged 19½; was admitted for evacuation to the U.K., having been medically boarded with a diagnosis of motor hysteria.

On admission he had no complaints but wanted something done about his fits because he was afraid they might ruin his life.

H.P.C. Fits started at age of 18½, one night when he was in bed; he only remembers waking up in hospital the following afternoon though the actual fit lasted 10 mins. Two of his N.C.O. friends witnessed this fit. Here it must be noted that he was stationed in a very hot part of India at the time, but he was happy in the job and undisturbed by heat. After a period of 6 days observation during which he had no fits, he was discharged. Twenty days later, while handing over his duty one night, he had another fit, again in the presence of his two friends. This time he was hospitalised for 25 days during which he had several fits. A medical officer describes one fit as follows: "foaming, screaming and struggling; no injury, no incontinence. Had premonition of fit by dizziness. Fit was mainly muscular spasm and there was a period of excitement following it. After seizure there was complete amnesia, weakness and left frontal headache." The psychiatrist noted: "has been hospitalised on three occasions on account of fits; these fits have been observed in hospital and are strongly suggestive of hysteria." These attacks lasted about 10 mins., they were always in the presence of other persons and the patient had never seriously harmed himself nor exhibited incontinence. The number of

fits till admission to this hospital was about twenty four. He has not had an attack for 10 days while under observation in this hospital.

Family History—Brother discharged from R.A.F. with "confirmed epilepsy." He has never seen him in a fit. One sister is very nervous and two other siblings are alive and well. Mother has "hysterical fits"; he has only seen one when aged twelve and "never wants to see one again". Father is a cruel man and left the home when patient was aged 15 (? psychopath). The children were separated and brought up in a Poor Law Institution.

Personal History—Childhood—Poor surroundings, never had a decent home, never happy as a child; was under strict discipline at school where he developed 'nervousness'. Remembers a few neurotic traits: as child "could not stop laughing and had to be locked up in a room."

Civilian life—Worked steadily for 4 years as a clerk and then volunteered for the Army.

Service life—Did not need to make an effort to adjust himself as he was already "used to discipline from school." Quite happy; quickly promoted in India. As a regular soldier, he was content to make soldiering his career. Until the fits started he was efficient but since then his efficiency deteriorated and he had to be 40 days off duty.

Emotional Growth—No sexual interest. Very attached to mother "being the only child who stuck to her."

Past history of illnesses—No head injury, nil relevant.

On Examination—Physically N.A.D. except for signs of sympathetic system disturbance due to anxiety *i.e.*, mild tremors, sweating, tachycardia of 90 when excited, hot flushes. Skull and muscles x-ray: no cysts, no sign of past injury.

Mental examination—behaviour—fidgety, normal otherwise; affect: emotionally unstable and immature (bursts into tears during simple interview); personality: sensitive, shy, not integrated. He would be deeply concerned at the least adverse comment from a superior; intellect: good functions; intelligence: S.G. II (Matrix score 49 in 40 mins.); insight: present. He was said to show indifference to his fits but fear of epilepsy. That is not his reaction now: he is developing a true anxiety state.

It was decided to give him the pitressin hydration test to elucidate the diagnosis.

The patient was confined to bed and put on a normal diet. His urine was tested for albumin and sugar and found to be normal. Hypertension, myocardial insufficiency, diabetes, and kidney disease were excluded on re-examination. Thus, in the absence of contraindications the test was carried out as follows:

An initial dose of 0·50 c.c. of pitressin was given intramuscularly, with 300 c.c. of water orally and subsequently two-hourly I.M. injections of 0·25 c.c. each, followed by 300 c.c. of water. A total of 10 injections was given. An intake and output chart showed the anti-diuretic effect with retention of water. The body weight was increased by 2 per cent.

After the 5th injection (total 1·50 c.c. pitressin and 1500 c.c. extra water, 2300 c.c. total fluid intake and 600 c.c.s output) the patient had an epileptiform convulsion. He became dizzy (aura) and later confused and incoherent and then lost conciousness. He exhibited jactitations and later tonic and clonic convulsions of the hands and oculogyric convulsions, his pupils were dilated, pulse 82 p.m., respiration 28 p.m. He had a similar attack during the early hours of the morning after the 10th injection, 24 hours after the beginning of the test (total 2·75 c.c. Pitressin, 3000 c.c. extra water, 6000 c.c. total intake and 3900 output fluid). Unfortunately no medical officer being present during these attacks, neurological examination was not carried out. The two reports of the day and night charges of the ward (experienced M.N.O.s) tallied. They thought the seizures were not imitable and that they were genuine epileptic attacks. Before evacuation he was observed by the M.O. in a spontaneous seizure, which confirmed the epileptic nature of the convulsions.

Patient was told of his condition and how it could be controlled. Superficial psychotherapy was reorientated and applied together with a short period of sedation. The patient became more cheerful and confident because "he knew where he stood now" and was prepared to cope with his handicap. He also realised that his mental condition might well precipitate the attacks. The anxiety state lifted.

Discussion

The case described fulfilled most of the clinical criteria of hysterical fits:

1. A poor psychiatric background.
2. A psychopathic personality.
3. Witnessing fits before.
4. Fits occurring always in the presence of other persons.
5. No severe injury incurred.
6. No incontinence.
7. Convulsions atypical and can usually be imitated.
8. The fits starting fairly late in adolescence.

(Described in that order to emphasise the positive psychiatric criteria first). And yet there were enough points to render the diagnosis doubtful: the presence of an aura, positive F.H. and the absence of any apparent psychological gain. The patient was not a typically extroverted hysterical type, he was intelligent and willing to use insight. The pitressin hydration test, a slight modification of that described by Blyth, (1943) was positive. This discredited the previous diagnosis and suggested a primary diagnosis of idiopathic epilepsy (latent). In this connection it is worth while remembering that there is a psychic form of epilepsy when convulsions are not usually present and the psychiatric symptoms (from irritability to attacks of mania etc.) predominate. Moreover, if an epileptic happens to be hysteroid, he may quite easily make use of his symptoms. Thus the differential diagnosis between the two conditions under discussion can be most difficult. It must be stressed that a psychiatric diagnosis should be made only on psychiatric grounds

and not, as it is often made, by exclusion of organic disease. Furthermore, in L. Alexander's words (1944), "The diagnosis of hysteria should only be accepted upon completion of the cure of the presenting conversion symptoms. Hysteria is a working hypothesis valid only for a limited time (*e.g.* prior to treatment)." While the pitressin hydration test is of little value when the result is negative, when it is positive, and a convulsion is observed (in a patient hitherto not having been seen in a fit) the diagnosis becomes almost certain. As a word of warning it should be added that the test is not devoid of danger (*e.g.* status epilepticus and post-convulsive palsy) and adequate precautions are therefore necessary.

SUMMARY

A case, with a doubtful diagnosis of hysteria (motor) has been described. The pitressin hydration test proved the diagnosis to be Idiopathic Epilepsy; accordingly, the patient was treated successfully.

The pitressin hydration test has been described and the differential diagnosis between hysteria and epilepsy discussed.

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PRIVATE MEDICAL PRACTICE

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Society as at present constituted has created a vested interest of medical men in the disease of the people. Besides the State medical relief, which is available to the people at the few hospitals, maintained at public expenses, people look to the private medical practitioner for relief when sick. Medical practitioners both in State Service and outside depend for their income, on the presence of disease in the society. Preventive medicine or positive health service has not sufficiently developed to keep people healthy in normal circumstances. This would obviate the necessity of medical relief to a great extent. As matters stand at present sick people have either to go to public dispensaries and hospitals or to private practitioners. Hospitals are few and far between. In Orissa, 15276 of urban population, on the average, are served by one institution whereas 52548 of rural population are served by one such institution. Further the provision for hospital bed in Orissa per 1000 of population is only 0·159. This demonstrates the paucity of institutional treatment of diseases in Orissa. In practice whoever can so afford calls on a medical man for domiciliary practice as people have got little faith in the existing institutions, particularly their out-patient departments. They are not unjustified as hardly a minute's attention is given to a patient on an average at the out-door. This has been shown by the Bhore Committee in their recently published report. Medical Officers are given less pay on the plea that they enjoy the privilege of private medical practice. The temptation of an extra income naturally leads them to take more interest in private medical practice than in hospital practice. The Bhore Committee, therefore, has made a definite recommendation to abolish private practice for State Medical Officers and for compensating them suitably for the loss of private practice. The consensus of opinion, in the country, seems to support this recommendation. The independent medical practitioners depend entirely on the prevalent sickness of the society for their livelihood. This, in the the words for Mr. George Bernard Shaw, is social insanity as the Doctor must always subconsciously desire for the prevalence and continuance of diseases. In one particular malarious locality in Orissa, the months of November, December and January are the busy months for the private medical practitioners yielding them a bumper practice. As soon as February comes the incidence of malaria declines and it is not uncommon to find medical practitioners putting up a long face for the beginning of the slack season. It, therefore, means that a doctor's prosperity is inversely proportional to the sickness rate of the locality. Doctors are, after all, men. They have to live by treating diseases and if subconsciously desire for the increase of diseases in society they cannot be blamed in the present circumstances. Not infrequently complaints are made that such and such doctor drags on the disease in order to keep himself engaged in practice for a longer time. Such cases are indeed very few if they at all exist. Where they do occur, there is nothing to wonder at as the existing social organisation favours it and makes a learned profession depend on social misery. The Swedes pay a fixed sum of money to their family doctor for the year whether the family is sick or sound. It is said that the Chinese pay their doctors when the family is well and stop payment when illness occurs. This system assures the doctor a fixed income and in his own interest he has to see that no body in the house falls ill as that means more work for him. Their system certainly appears sound and more rational. Such a system did not exist in India where the village "Vaidya" used to be given yearly subsidies in cash or kind who, in return, used to threat the members of the family. Even certain institutions, like school-hostels and business-establishments engage doctors on monthly salary basis. In such cases the doctor is very careful to see to the prevention of diseases amongst his constituents so that his work may be lighter.

So long as a universal State Medical Service is not introduced into the country as in Russia some sort of fixed remuneration practice like the Swedish system may better be introduced into our society in the best interest of all concerned.

SPECIAL ARTICLE

THE BASIS OF MEDICINE

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Medicine, which deals with health and disease in the human being and which therefore is of common interest to all mankind, should be able to evolve a common basis, a set of 'first principles' from which its various specialities should sprout as offshoots instead of its being permitted to grow into a number of independent systems. In this country there are however four systems of Medicine, the Scientific, the Ayurvedic and Unani Tibb which are all allopathic in principle, and the Homoeopathic System. Of these the Ayurvedic and the Unani are known as the Indigenous Systems. Historically, Ayurveda is the oldest and the one which influenced the growth of Greek Medicine and that of its Arabic variant the Unani Tibb. The Scientific System, which started as the western system, has had its most, significant development as a result of the scientific advance over the past hundred years. Homoeopathy, which, as against the others is based on principle of "similars", was developed by Hahnamman in 1790 A.D. Of these systems Scientific Medicine has full support and recognition from Government, while the others are enjoying it only to a very limited extent. The admirers of the indigenous systems, though indebted to science in almost every sphere of life, do not hesitate to criticise the scientific system as being foreign and as unsuitable to India in view of its being expensive and too prone to experiment on the patient while we, in the pride of our achievements, are apt to regard the indigenous systems as "being based on quite fanciful and erroneous theories".[1] Is such antagonism the result of mutual jealousy or are there any sufficient reasons for perpetuating this conflict? It is unnecessary to give in detail what scientific medicine has been able to do for the world as a whole and for India in particular. Reference may, however, be made to the great contribution which bacteriology has made to the prevention and treatment of diseases like malaria, kalazar, typhoid, dysentery, cholera and plague, the creation of highly potent synthetic drugs, the harnessing of electricity, x-rays, radium and, as may reasonably be expected, of atomic energy for the alleviation of suffering and cure of disease at an early date. It should not, however, be forgotten that the scientific system is, in spite of the great progress that has been made, far from perfect and that the indigenous systems must have at least some good to offer in that they should continue to be supported by quite a large section of the intelligent public in this country. It seems to me neither rational nor prudent that we should continue to regard the indigenous systems as altogether useless. Such an attitude is irrational because these systems have never been subjected to any scientific investigation and it is imprudent because if the Government, in disgust with our attitude of opposition, helps these systems to modernise themselves to a limited extent and gives their exponents equal status with the practitioners of scientific medicine, the results are bound to be disastrous. The practitioners of indigenous systems, with their insufficient training in modern scientific methods, are bound to prove dangerous to the public especially when they are permitted to use freely the powerful drugs which scientific medicine has brought into being. The common man has not sufficient discrimination to pick and choose his doctor intelligently and will probably seek, in turn, the services of vaids, hakims and scientific doctors. Further, the small health budget, which this poor country can only afford, will be divided up between these various systems of medicine. I am personally confident that, in the conflict that might follow, the security and existence of scientific medicine will not suffer but it seems almost certain that its progress will be hindered and delayed. It is, therefore, our duty to discard all prejudices and preconceived ideas and to take up a careful investigation of these systems. If such an investigation leads to the securing of knowledge which is of value we should willingly incorporate it in our own system in order that it might develop into a truly modern system of Medicine—a wholistic unity with a common basis and common end.

In so far as our system is concerned, let us freely acknowledge that we have yet to evolve a coherent theory of medicine, which will help us to integrate and harmonise the large volume of physical, chemical and biological data concerning the health and disease of man which are now available to us. As Sir Roberts Hutchison[2] has pointed out, in the absence of such a theory, "an immense amount of investigation into the causes and manifestations of disease will be found going on but often it is ill-conceived and ill-directed with the result that much so-called 'research' is merely beating of the air, a form of solemn trifling, wasteful alike of time and money. This confusion is reflected in medical publications which have become excessive in number and often so highly specialised that their very terminology is only to be understood by the initiated, full of facts and observations but poor in ideas, in fertile hypotheses and in helpful generalisations." Hence Walshe[3] has suggested that, in the organisation of the future medical curriculum "some attention shall be given to the theoretical aspect of Medicine, and to its formulation and teaching, in any proposed reform of medical education."

In our attempt to develop a reasonable theory of Medicine let us study the indigenous systems also, for as Osler has said, "it is by the historical method alone that many problems of medicine can be approached profitably." A plea for such study has already been made by Sir Ram Nath Chopra[4] in the following words:

"The Indian systems have been regarded by many of the Western Scholars interested in oriental studies as a rich mine of knowledge from which many useful things might possibly be unearthed. It has been said that the medicine of India was permeated with the

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scientific spirit as evidenced by a desire, by observation and experiment, by induction and deduction to prove the secrets of nature and to build thereon a rational system of medicine.

On the other hand a contrary opinion is also not wanting that no benefit will be derived by a study of the old systems which are based mainly on empiricism rather than science. This reasoning, however, does not seem to be based on sound logic. A system which has survived to such an extent the ravages of time, cannot be entirely brushed aside as unscientific". Sir Ram Nath therefore, concludes that "old systems cannot be summarily condemned as useless but should be subjects of enquiry and investigation."

I am glad the Government of India have recently appointed a Special Committee with Sir Ram Nath as its Chairman, one of the functions of which is to make recommendations regarding the "provision that should be made for research in, and the application of scientific methods of investigation of the indigenous systems of medicine, such as Ayurveda and Unani Tibbi with reference to the maintenance of health and the prevention and cure of disease".

As scientific investigation can only be undertaken by men familiar with the scientific method, we the Physicians of the Scientific System should not stand aloof and thereby allow the Committee to recommend to let the vaids and hakims to undertake research into their own systems. With their insufficient background of scientific training they are bound to create further confusion by their incorrect and unsatisfactory handling of the problem.

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It is in this spirit that I have for some years past interested myself in the Unani Tibb which is the more recent of the two indigenous systems and is thus likely to be more in line with scientific medicine. For this purpose I have chosen Kuliat-i-Kanoon[5] or the book on the General Principles of (Unani) Medicine. This book is the first volume of the 'Kanoon' by Avicenna—(980-1036 A.D.). The Kanoon or the canon[6] contains a *"clear and a concise description of all what a Physician* (of the Unani System) *ought to know"*. Until the middle of the seventeenth century it was used as a text book of medicine in the Latin West and is now being employed in Tibbia Colleges in this country. It is from this book that I shall translate some of the passages and will offer for your consideration my own interpretation of the concepts involved in them. An examination of hypotheses in the light of the newer knowledge available to us will, I feel, constitute in itself an application of the scientific method to the study of the Unani System.

The Definition and Scope of Medicine

This concept deserves consideration in the first place. Although it may appear to be elementary it is most important—because it is necessary that Medicine should be introduced to the student with a comprehensive conception of what it precisely means and what is expected of the doctor. Unfortunately students of the scientific system seldom receive any clear definition of medicine and are only too often led into dissection rooms and laboratories without any kind of preliminary instruction on the lines indicated. Even when given the definition which is available in Dorland's Medical Dictionary[7] namely, "Medicine is the art or science of healing diseases by the administration of internal remedies". The student is led to think that the primary function of scientific medicine is to concern itself with the study of disease and to ignore the study of health without which, as Ryle[8] has pointed out, neither the recognition of disease in its early stages nor its treatment is possible, both of which are of fundamental importance from the point of view of the individual and of the community. The ultimate purpose to be achieved is not merely the prevention and cure of disease but the promotion of positive health so as to prolong life and to enable the individual to enjoy it to the full and to increase his working capacity. From this standpoint the study of health and of the earliest departure from it is of paramount importance. I shall now give the definition of Medicine in the Unani Tibbi and have no doubt that you will agree with me that it is sufficiently comprehensive to include all the ideas referred to above.

"1. *Medicine (Tibbi) is that branch of knowledge which deals with the states of health and disease in the human body in order that suitable measures may be adopted for preserving and restoring health*".

"2. *By terming it as a branch of knowledge it may be wrongly regarded as being purely theoretical*".

"3. *But it must be remembered that, like Art and Philosophy, Medicine too has its practical and theoretical sides. Sub-divisions, however, differ from one another in accordance with the branch (of knowledge) to which they variously belong. In medicine with which we are here concerned this difference amounts to the theoretical being that which deals with the principles of Medicine and the practical which pertains to its technical methods....Here a knowledge of both the theoretical and of the practical aspect of Medicine is necessary for a Physician*".

These are views with which the exponents of scientific medicine should be in complete agreement. Indeed the need for an adequate emphasis on the theoretical aspect of modern Medicine in the schools is receiving increasing recognition. The Inter-Departmental Committee on the Medical Schools of Great Britain[9] expressed itself to be in full accord with the view of Sir Thomas Lewis that "Medicine can no longer be taught entirely as a practical art" and that "there should be diffused throughout the whole of the clinical part of the course special teaching displaying the theoretical basis of clinical medicine". Such teaching can be based on sound foundations only through a simultaneous attempt to build an integrated structure of theory covering health and disease. It is true that the advance of knowledge in the fields of the biological and physical science has largely widened the range of facts available to scientific medicine and has extended its power for further investigation. But even now, can we claim that the theoretical basis of our Medicine has been so strongly built up as to enable us to give a convincing answer to the various obscure problems that arise? On the other hand it seems to me that the

multiplicity of facts at our disposal renders it all the more difficult to create a theoretical structure which fits in with all these facts. The need for further research in the theoretical field is, to my mind, increasing and I believe it may not be wise for us to refuse to examine and see how far the indigenous systems can contribute to the theory of Medicine.

The Basis of Medicine

It will be seen from the following that the theory of Unani Medicine is built up on the rational basis of observation and experiment:

"A complete knowledge of a thing can only be obtained if one learns about its causes, provided such causes exist (i.e. are knowable). Hence it is necessary that causes both of health and disease should be determined (i.e., investigated). Sometimes these causes are quite apparent, (i.e., can be observed) but at other times they have to be inferred from the various signs and symptoms. It is, therefore, important that the signs and symptoms associated with disease should also be described. It is a truism of Natural Philosophy (i.e., of the Sciences) that complete knowledge of a thing can only be obtained by learning about its causes and antecedents (by direct observation). But when such knowledge is not available, we can only learn about the thing, (i.e., by inferring), from its signs and symptoms".

From the above it is clear that Avicenna's axiom like that of science is that a *'complete knowledge of a thing can only be obtained by elucidating the causes and antecedents.'* Unfortunately however the progress of Unani Tibb became stagnant and even degenerated into empiricism and quackery at the hands of the majority of Avicenna's successors. This is not the fault of the Unani Tibb. Obviously the main cause for such degeneration is that they gave up the method of observation and experiment advocated by Avicenna and were content with quoting his authority or otherwise speculating on the probable causes when new and unaccustomed situations arose.

On the other hand the Scientific System has been able to make such an outstanding progress because it faithfully followed his advice to accept nothing except through the method of observation and experiment.

In order to indicate further that the Unani System of Medicine is based on a scientific approach I may quote from Avicenna's book another passage where he defines clearly that there are three groups of facts in relation to which the student of medicine will have to adopt a varying attitude.

A. *"16.... The various organs and their functions are to be learnt by observation and analytical study* (Hiss and Tashreeh).

B. *Things which have to be inferred and proved by reasons are the diseases, their various causes, symptoms, and appropriate methods of prevention and treatment. These are things some of which cannot be observed and have to be rationally explained to their full extent in reference to both space and time* (Mikdar and Wakat).

C. *"13.....Some of these matters are mere hypotheses and have to be taken for granted by the physician as true. These have been derived from Natural Sciences (Tibbyat—Physics, Biology etc.).... They are like the basic hypotheses of other secondary branches. It is only in the major branches of knowledge that these hypotheses are discussed and are used until their discussion merges into 'pure' Philosophy and Metaphysics.*

Things which the Physician has to recognise and accept without proof as true are the 1. Elements (Arkan) and their number 2. Existence of Temperaments (Mizaj) and their number 3. Humours (Ikhlat) their number and properties 4. Faculties (Qawa), their number and location 5. Energies or Activities (Arwah), their number and location 6. The general law that a state cannot exist without a cause and the varieties of causes.

15. It would be wrong for an eminent Physician like, for instance, even Galen to attempt proving the existence of Temperaments, Elements, etc., which are hypothesis of the Natural Sciences. For one thing they do not strictly fall under Medicine and further no useful purpose will be served by discussing them".

As regards Avicenna's views on the study of the various organs and functions as well as their diseases etc., there can be no difference of opinion even to-day. In regard to the hypotheses Avicenna would appear to have borrowed the conception of Elements and Temperaments from physics, the conception of Humours, Faculties and Energies from biology and the law of causation from Philosophy. If these hypotheses had been derived from Physics and Biology as understood by us to-day there should have been no difficulty in our accepting them whole-heartedly. As however they belong to the Physics and Biology of a bygone age, these conceptions cannot be accepted to-day without further investigation.

His approach however in a general way holds good even to-day. It is clearly beyond the range of the medical practitioner to go deeply into the intricate aspects of the biological and physical sciences. He has to accept the truths put forward by them as proven facts. From the point of view of the medical student I hope it will be conceded that what is required to-day is a lessening of the increasing load of pure science in the curriculum, in order that more emphasis may be laid on subjects which have a more direct bearing on medicine.

Many will say that it is impossible to prune the curriculum without disastrous results. This is a fallacy, for at present many hours which might be better employed are spent in getting a smattering of subjects which it is extremely improbable that the student himself will ever need to use. The fallacy depends largely upon the old-fashioned ideas that it is impossible to teach applied science scientifically except on an elaborate basis of pure science; yet there are thousands of physicists and engineers who can use the calculus practically without any profound knowledge of pure mathematics, and thousands of people who make good use of instruments the working of which they do not understand".[10]

In regard to the law of casuality which appears to have been imported from Metaphysics a branch of

Philosophy, it may be said by way of introduction that Science and Philosophy are not mutually exclusive of each other. A suitable proportion of speculation is necessary for the growth of a balanced system of Medicine. It is true that in the past speculation had become a formidable barrier to the progress of knowledge but as Trotter[11] has pointed out "....There are at least two strong reasons why a permanent abeyance of the theoretical, speculative, and rational element in the pursuit of medicine could not be regarded as wholly satisfactory.

In the first place experience seems to show that a branch of knowledge strictly limited to experiment and without any kind of speculative admixture tends in time to lose its inspiration and drift into a dry and rigid orthodoxy. Some such decline was perceptible in the physical sciences towards the end of the nineteenth century, and there can be little doubt that a strict reliance on experiment alone would in the long run have a similar deadening effect on scientific medicine. In the second place medicine is, as we shall point out more fully later, a composite subject. One of its elements is an experimental science, but a large part of it obeys the very different discipline of a practical art. In consequence it has often to deal with and act upon incompletely definable situations, and to develop the faculty of practical judgment on imperfect evidence—an activity characteristically absent from an experimental science. As long, therefore, as medicine continues to be so largely an activity of a non-scientific kind, every faculty of the active, rational mind is to be desired in the practice of it". We have therefore to recognise that Science and Philosophy are complementary to each other. Science is based on perception, while Philosophy makes use of the distinctively human faculty of intellect. Science employs the method of observation and experiment while Philosophy purely that of the reason. Science attempts at gaining verifiable knowledge while Philosophy seeks to unify all knowledge. Hence the two cannot be kept distinct in practice. Many of the alleged scientific opinions are often supported on purely rational grounds and many of the philosophical conclusions need verification. In ancient times Science and Philosophy were rightly hand and glove with each other and produced an illustrious line of Natural Philosophers like Hippocrates (460-359 B.C.)—the father of Medicine, Aristotle (384-322 B.C.)—the father of Biology, Galen (A.D. 130-200)—the founder of Biology, Galen (A.D. 130-200)—the founder of Human Academy and as we have presently seen Avicenna (A.D. 980-1036)—the Prince of Physicians. It is only when speculation became the exclusive means for gaining the knowledge and the bare naked facts began to be despised with the result that world quite unnecessarily got steeped into darkness of mystry and superstition. But the reactionary advent of Science too in leaving speculation entirely alone, has also created newer types of problems. It has no doubt given us a large number of most valuable facts, but it has also created a confusion in our politics, our economics and in Medicine which we hold so dear. What is now wanted is a proper synthesis of Science and Philosophy and this especially to evolve a single system of Medicine which is based on sense experience but is ready and willing to learn also from wisdom of the intellect.

Before I close this paper I may be permitted to briefly interpret the Unani law of causation which is derived from philosophy in order that you might be able to appreciate the importance of philosophy in a branch like medicine. In this connection it is necessary to bear in mind that causation as understood by the physical science of the past century is mechanical and non-purposive. It implies merely a push from behind by some efficient force on a mass of matter. It assumes that all phenomena including those of life are explainable mechanically in mathematical terms and that man is as if no more than a complicated machine which some how thinks, feels and wills. It is, however, becoming increasingly clear that this mechanistic philosophy to which the current scientific system still seems to be wedded though admirably suited to the study of dead and inert bodies is unable to account for the phenomenon of life, let alone describe and explain the human organism which is endowed with willing and conscious purposes.

The alternative to mechanism is the doctrine of finality which according to Berson[12] says that the parts are brought together on a preconceived plan with a view to a certain end, in its anthropomorphic character it likens the labour of nature to that of the workman who also proceeds by the assemblage of parts with a view to the realisation of the idea on the imitation of a model and is thus forced to the logical absurdity of a psychophysical parallelism about which I shall presently quote from the recent Advances in Psychiatry. According to Avicenna life is constituted differently for in reference to the state of health and disease in the human being he says as below that causation is not merely the action of an efficient on the material factor nor alone the effect of the final cause but is the mutual interaction of the following four:

"(i) Material (Madi) cause is provided by the physical body in which health and disease manifest. This may be immediate as the organs of the body together with the vital energies (or activities) and remote as the Humours and remoter than these the Elements which provide a basis for the structure and (the emergence of vital qualities from) the change. Things which thus provide the basis for health and disease get so thoroughly altered and integrated that from an initial diversity there emerges a wholistic unity (wahdat) with a specific structure and a specific temperament.

(ii) Efficient (Faieliya) causes are those which are capable of either preventing or producing changes in the human body. These are age, sex, occupation, residence, climate and allied factors like the seasons, habits, rest and activity—physical as well as mental, sleep and wakefulness, food and drink, retention and depletion and finally things inimical or otherwise, which may be in contract with the body.

(iii) Constitutional (Sorria) causes are those which depend upon nature of the temperament and the strength (and type) of faculties which emerge from the temperament and structure.

(iv) Final or Functional (Timamia) cause is in the functional activity of the organs which in turn depend upon the various faculties and their associated vital energies which will be described presently in some detail.

From the above it will be observed that the Unai System regards man as a vital whole in which not only activity and structure are inseparable from each other but also inter-dependent upon the various environmental and other factors. This 'wholistic' view appears to be in accord with that of the modern biologists and is also being increasingly adopted by practitioners of Scientific Medicine. As Henry Devine[13] says this 'concept of the organism as a whole' "has now almost superseded the hypothesis of psycho-physical parallelism, according to which there exist side by side two activities the one psychological or spiritual, the other physiological or material, the one knowing nothing of and being uninfluenced by the other. This dualism or reciprocal epiphenomenalism failed to suggest any logical basis for the parallel development of nervous and mental processes more reasonable than that advanced by the analogy that a change of attitude of the body is accompanied by a change of shape of its shadow. We do not think, however, of the existence of separate entities, mind and body, which are inexplicably juxtaposed, but rather in terms of mind-body, having always in view the essential unit of the living organism."

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In conclusion may I point out that the purpose of this short address is to stimulate thought among my fellow physicians regarding the basis of medicine, its comprehensive nature and the need for a determined effort to integrate the vast and growing body of knowledge in respect of the functioning of the human body in health and disease into some coherent scheme of medical theory and practice. While we have every reason to be proud of the great resources which science has placed at our disposal for the diagnosis, treatment and prevention of disease let us not forget the danger that exists, namely, that we may, through our concentration on a mass of details, fail to realise the essential need for building up The Basis of Medicine on sound lines. I have attempted to show that, in setting about this task, a study of the indigenous systems of medicine through the adoption of the scientific method may well prove to be of value. Let us not forget that our ancestors, who helped to create and develop Indian Medicine, were imbued like ourselves with the scientific spirit. Centuries ago the great Charaka wrote "One who does not enter, with lamp of knowledge, the very innermost parts of the patient in order to arrive at a correct diagnosis, can never treat the disease properly."[14] The intervening years, with all the advances in knowledge which they have produced, have only helped to strengthen the importance of Charaka's observation. Will we be therefore wrong if we accept the position that a scientific study of the indigenous systems of medicine may help to advance the cause which we as Physicians have all in mind, namely, to promote the growth of what I may call Modern Medicine through the incorporation of knowledge and experience of value, wherever they may be found, in order that the conquest of disease and the development of positive health may extend progressively for the benefit of mankind.

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CASE NOTES

A CASE OF UTERUS DUPLEX AND VAGINA DUPLEX

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T.L., H.F. 17, attained puberty 3 years back; married one year ago, nullipara; was having regular periods which were occasionally and slightly painful. Patient was noticing a gradually enlarging swelling on the right side of the vulval orifice since two months. Coitus was not possible since the same time and was painful for sometime before.

On examination—A healthy girl of proportionate stature. A round swelling was visible on the right side of the vulval outlet with thin and almost translucent wall. A diffuse swelling was seen in the lower abdomen more to the right side of the middle line. On palpation a cystic mass was elicited in the supra-pubic region occupying the right iliac fossa also, with irregular border. A small lump was also felt in the left iliac fossa. Digital examination per vagina revealed the cystic swelling at the vulval outlet to be tense and to be continuing above as a semi-cylindrical swelling along the right lateral and anterior walls of the vagina. The vaginal swelling was cross-fluctuating with the mass in the lower abdomen. The gloved finger could not find any cervix, and thus gave rise to the doubt as to how the patient was having the menstrual discharge and the history seemed incredible. The vagina was too narrow to allow a speculum examination.

Diagnosis

No definite diagnosis was made, although a dermoid in the pelvis with extension of the cyst subjacent to the vaginal mucous membrane was considered possible.

Treatment

An explorative laparotomy was considered permissible, in view of the continuity of the abdominal and vaginal swellings. Analgesia—L. 3 L. 4. spinal, 1·5 c.c., of percaine 1 in 200 was given, with 1 c.c. of pholedrine intramuscularly, analgesia lasted for 3½ hours. Right paramedian subumbilical incision was made and on opening the peritoneum what looked like the uterus was enormously distended and was feeling cystic. The right tube was also distended. The cystic swelling could not be brought into the wound because of the separation and marked stretching of both the layers of the broad ligaments, particularly the right. A trocar and cannula was inserted and about 3 pints of chocolate coloured fluid (retained blood) was evacuated. This facilitated mobility of the mass. On the scrutiny of the position of the round ligaments, it was realised that there was a duplicate condition of the genital track, with the right component distended due to congenital atresia at the outlet, and the left component rudimentary, both the components being in intimate contact except proximally where there was a definite indentation between the two horns. The uterine musculature was well developed. The ovaries were normal. There was a strong uterosacral ligament containing thick fibromuscular tissue going from the right border of the right component to the sacrum. Uterine vessels were single for each component. The uterus and other pelvic structures were found to be normal. Hysterectomy was done with a portion of the supravaginal part of the cervix spared on the right side and upper half an inch of the vagina sacrificed on the left side. The persistent hymen was incised and a fenestrated rubber drain was inserted to drain the sanguinous fluid. The stumps of the cervix and the vagina were sutured separately and the raw area in the pelvis peritonised. Abdomen was closed in layers. Skin sutures were removed on the 13th day and the vaginal drain on the 18th day. Patient made satisfactory recovery except for temperature and parotitis on the right side in the post-operative period, both of which subsided with one lakh units of penicillin.

Anatomy in brief—After a coronal section of the removed organs, the condition was considered to be; uterus bicornis, bicollis with persistent vaginal septum and cloacal membrane (hymen) hæmato-colpos, collis, metris and salphinx on the right side. The left component comprised of the functioning vagina, encroached upon by the distended neighbour, a miniature cervix indicated by a small ostium with thin circular muscle fibres, a rudimentary uterus intimately in association with its fellow in the caudal half, and a tube with its fimbriated end.

Comments

The case which is having a double uterus and double vagina (uterus duplex and vagina duplex) arising out of defective fusion of the Mullerian ducts nearly approximates to the classical description called uterus bicornis bicollis although it differs from this because of the presence of double vagina, one of which had congenital atresia. But for the want of space between the two embryological components and the resulting existence of a vesicorectal pouch of peritoneum or vesicorectal ligament it deserved to be called the uterus didelphys. The definite indentation at the junction of the two components rules out uterus septus.

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CONVULSION FOLLOWING LOCAL ANAESTHETIC

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The danger in the use of local anæsthetics is not so well appreciated by the general practitioner.

Leaving aside the more common post-anæsthetic complications, 'locals'—convulsions are met with sometimes following major surgical operations.

This is a very rare complication and is usually attributed to neglect on the part of the anæsthetist. It has been noted by many surgeons while doing minor surgical operations under 'local' that the patient complained of giddiness and in the next few seconds went into a state of transient syncopal attack. From this the patient readily recovers.

This is totally different from the convulsion that is met with as one of the major complications of 'locals'. It is well known to all anæsthetists that the solution used for local anæsthesia better known as regional analgesia—can give rise to convulsions under the following conditions:—

(1) Exceeding the toxic dose.

(2) Injection within the lumen of a blood vessel.

(3) Where the patient is hypersensitive.

In a major surgical operation in poor risk cases where the present day technique is a regional blocking supplemented by a subcutaneous barrage, a considerable amount of dilute solution of the 'local' (Procaine or Amethocaine hydrochloride) is used. This requires numerous pricks at different sites, thus increasing the risk of injecting the solution into a blood vessel, usually a vein. This is one of the causes of convulsion.

However, in large number of cases 'local' is the only anæsthetic that can be used with comparative safety.

During the last twenty months, I had the fortune of using 'locals' as the anæsthetic of choice in many major surgical cases numbering more than seventy, majority of cases being exploratory laparotomies. The average time taken for such an operation being more than one and half hour. Recently I had the mis-

fortune of coming across the most dreaded complication following 'local' in a case of tubercular cæcum with early pulmonary infiltration in a young lady of twenty five operated for tuberculosis of cæcum causing intestinal obstruction. An entero-colostomy was performed.

Procaine hydrochloride 2 per cent and 1 per cent was used. The total quantity used was equivalent to 40 c.c. of a 2 per cent solution. The same sample of the 'local' used on the same day on another patient did not produce any toxic symptoms.

The blocking and infiltration for the abdominal field block took 10 minutes. Five minutes more had already elapsed before the surgeon was ready for the incision. It was at this time that I noticed some twitchings in the muscles on both sides of the face lasting for about 5 seconds to recur after about half a minute. This time the twitchings changed into convulsions which spread all over the body as clonic contractions lasting for several minutes (more than 5 minutes). There was frothing from the mouth. The convulsion ceased of itself. The general condition of the patient, who was well under the influence of premedication being quite satisfactory. I had allowed the surgeon to proceed with the operation and to my surprise the convulsion recurred after about 7 minutes of the operation; the attack lasting for two to five minutes. The operation had to be suspended as the patient underwent a series of such convulsions. Such a phenomenon was quite unknown to me and I was certain that I had not injected the 'local' into a blood vessel. Moreover the patient was not hypersensitive, the same 'local', having been used for 'track' anæsthesia for pneumothorax several times before the operation. All these led to a fallacy in the diagnosis of the condition. To cut short the attack I took bold step and injected ½ c.c. of a 5 per cent solution of sodium pentothal, thus making it possible for the surgeon to continue with the operation for over one hour and thirty-five minutes (actual time) without the slightest complaint from the patient who was in her full senses all the time. There was no evidence of any shock or postoperative complication. Recovery from effect of the operation was uneventful.

SUMMARY

(1) Procaine convulsion though rare can occur inspite of all precautions taken by the anæsthetist.

(2) Very small quantity of intravenous barbitone is effective in cutting short an attack.

(3) Major surgical operations can be continued once the patient had tided over the attack by ready and efficient handling by the anæsthetist.

(4) No stimulants were used in the absence of cardiac or respiratory failures.

(5) Diagnosis in such condition is of prime importance. In this subject we had to deal with a neurotic (?) hysterical tubercular female where regional analgesia was the only method of choice and where the convulsion had to be differenciated from hysterical attack and epilepsy.

Acknowledgment—My thanks are due to Rai Bahadur Dr. Suraj Narain, Officiating Civil Surgeon, Ajmer-Merwara, and to Major G. P. Charleswood, M.B., CH.B., M.R.C.O.G. (LOND.) who operated on the case for permission to publish this report.

DR. S. N. SEN GOLD MEDAL

In memory of his deceased son, Dr. S. N. Sen, B.SC., M.B. (CAL.), Kaisar-i-Hind of Jamalpur (Dist. Monghyr) E. I. Ry. has desired us to announce the offer of a Gold Medal for the best paper to be read at the 1947 session of the All-India Medical Conference to be held at Bombay during Christmas week, on "INTESTINAL OBSTRUCTION AND OTHER COMPLICATIONS OF APPENDICITIS, HOW TO PREVENT AND TREAT SUCH COMPLICATIONS AND SAVE THE PATIENTS FROM THE CRUEL SUFFERINGS AND DEATH".

The undersigned will be pleased to receive six typed copies of articles on the above subject from research workers and investigators. The last date of receipt of papers will be 30-9-1947.

23, Old Hindusthan Buildings,
Calcutta 13.

P. K. GUHA
Acting General Secretary, I.M.A.

JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, MAY, 1947

CO-ORDINATION OF SPINAL REFLEXES

Reflex Action is the response in a muscle, gland or an internal organ to a stimulus originating in the skin, muscle, internal organ or the eye and the ear, without the organism being consciously involved in the act. The mechanism is more primitive than the elaborate acts of volition and intelligence which involve the cerebrum and is directed on the whole towards the well-being of the individual. In its simplest form the reflex action depends on the integrity of the (*i*) afferent path which conveys the impulse from the receptor organ to the central nervous system, reaching the posterior root ganglia or their cranial homologues *via* the posterior nerve roots; and (*ii*) efferent path which conveys the motor impulse from the motor cells in the anterior horn cells of the spinal cord *via* the anterior nerve roots to reach the effector organ. In the simplest form of reflex action only two neurones are involved, *e.g.,* in the Flexor Reflex where stimulation of the afferent nerve in the leg leads to flexion of the ankle, knee and hip. In other forms of reflex action, *e.g.,* where the impulse has to cross the middle line of the spinal cord, one or more connecting or 'internuncial' neurones are involved. This is seen in the Crossed Extensor Reflex, where stimulation of the afferent nerve in one leg leads to extension of the ankle, knee and hip of the other limb.

Stress must here be laid to the 'principle of convergence' promulgated by Sherrington and the Oxford school of workers: each afferent nerve ends by means of its branches in relation to many anterior horn cells, each of which again receives impulses from many sources. Thus, impulses *via* the posterior nerve root pass up to higher levels in the nervous system and relay there, to descend again to the anterior horn cells, either by the shortest direct route, or *via* a varying number of connecting neurones. This involvement of a number of motor neurones, specific though they are, is referred to when we say that an afferent nerve 'fractionates the centre'. To be effective, the impulses arising at widely varying levels in the nervous system and traversing widely different paths, must converge towards the anterior horn cell of that muscle which they mean to activate—the 'final common path' of Sherrington.

The fact that nerve centres can be and actually are depressed by impulses arriving there at once negatives the one time idea that centres act merely as telephone exchanges. Sherrington's theory may be condensed to denote that impulses set up a 'central disturbance', the exact nature of which is still undetermined and the site of which is perhaps at the *pieds terminaux* of the anterior horn cells. This implies that motor neurones are not directly concerned with the afferent impulse, but only with the excitatory state set up by it and respond as soon as the state reaches the threshold. This state is capable of cumulation, as a result of repeated subliminal production by the same or different nerves; but the act of discharge at once destroys the excitatory state and brings it down to zero.

A dog steps on a sharp point: there is flexion of the leg with a corresponding extension of the contralateral limb, thus constituting the first step in moving away from the harmful stimulus. Impulses are, therefore, so directed as to involve only those muscles whose activity will tend to exaggerate the primary reflex. This leads to a selective re-grouping in the spinal cord and involvement of those anterior horn cells alone which are concerned with the particular movement desired! All muscles are however in a state of tonus, depending upon the amount of extension actually present at the moment. For a purposive reflex to be accomplished, these must be adequately inhibited: Relaxation of antagonists must proceed *pari passu* with contraction of the protagonists, if movements are to be smooth, easy and effective—the law of 'reciprocal innervation'. It is presumed that afferent impulses on entering the spinal cord, stimulate a particular group of motor cells, at the same time inhibiting their antagonists. The receptive field, the nature of the stimulus, the threshold for the central excitatory state—all are the same. The imperative stimulus dominates and every effort is concentrated towards this end, leading, if necessary, to the inhibition of antagonistic muscles.

A slight stimulus is given to produce a scratch reflex in a dog; on now applying a stronger or a painful stimulus, the dog stops scratching and the limb now goes into flexion in an attempt to draw away from the nocuous stimulus. Allied stimuli may reinforce each other and make the end-result stronger, but all other stimuli are ignored. How is this done? The efferent path is the same—the posterior nerve roots are the common path of all cutaneous and muscular sensibility: even antagonistic impulses must traverse the same path in order to reach the nervous system. It may therefore be justly presumed that the mutual inhibition that takes place in order to lead to a purposive act, takes place—not in the final common path—but in all probability, on the afferent side of the reflex arc.

CURRENT TOPICS

WORLD MEDICAL ASSOCIATION

The following is the abstract of the Report of the Organising Committee of World Medical Association for 1946-47.

Appointment of Committee

The World Medical Association was founded at the International Medical Conference convened in London on 25th-27th. September, 1946, by the Association Professionnelle Internationale des Medecins and the British Medical Association. Pending the first Annual Meeting of the new Association, the Conference appointed an Organising Committee, with the following terms of reference:

(*a*) To draft for the W.M.A. a constitution, including articles and by-laws, embodying the recommendations of the Conference, and to submit the draft to the first annual meeting for ratification or amendment;

(*b*) To include in its consideration the following matters:

(*i*) programme and date of first annual meeting of the Association;

(*ii*) production of a journal;

(*iii*) programme of first year's work;

(*c*) To proceed with the organisation of the Association.

The Conference appointed the following delegates to be members of the Committee: Drs. F. Decourt (France), P. Glorieux (Belgium), D. Knutson (Sweden), O. Leuch (Switzerland), J. A. Pridham (Great Britain), T. C. Routley (Canada), Professor I. Shawki (Egypt), Drs. L. G. Tornel (Spain) and A. Zahor (Czechoslovakia).

Soon after the Conference the American Medical Association indicated its intention of accepting membership of the W.M.A., and the Committee considered it advisable to add to its number a member from the U.S.A. Dr. Louis H. Bauer was accordingly appointed, with Dr. Elmer Henderson as Alternate.

Officers

At the first meeting of the Organising Committee on 27th September, 1946, Dr. T. C. Routley (Canada) was appointed Chairman of the Committee, and Dr. F. Decourt (France) Vice-Chairman.

The London Conference made the following appointments:

Provisional Joint Secretaries: Dr P. Cibrie (Paris) and Dr. Charles Hill (London).

Treasurer: Dr. O. Leuch (Zurich).

Association Professionnelle Internationale des Medicins

In view of the formation of the W.M.A., Dr. Decourt, Secretary of the A.P.I.M., took steps to obtain the consent of the members of the latter to its dissolution and to the transfer of its documents and residual funds to the W.M.A. The Committee has expressed its appreciation of the generous action of Dr. Decourt and his colleagues.

Membership of the World Medical Association

The Committee addressed a letter to sixty national medical associations explaining the purpose of the W.M.A. and inviting their support. At the time of writing this report the following national medical associations have accepted membership :

Country	*Organisation*
Australia ..	Federal Council of the B.M.A. in Australia.
Austria ..	Oesterreichischer Aerztekammertag.
Belgium ..	Federation Medicale Belge.
Canada ..	Canadian Medical Association.
Czechoslovakia	Czechoslovak Medical Association.
Denmark ..	Den Almindelige Danske Laegeforening.
Eire ..	Medical Association of Eire.
France ..	La Confederation des Syndicats Medicaux Francais.
Great Britain ..	British Medical Association.
Hungary ..	Orszages Kozegeszsegugyi Tanacs.
Iceland ..	Laeknafelag Islands.
India ..	Indian Medical Association.
Netherlands ..	Nederlandsche Maatschappij Tot Bevordering der Geneeskunst.
Norway ..	Dan Norske Laegeforening.
Palestine ..	Palestine Jewish Medical Association.
„ ..	Palestine Arab Medical Association.
Portugal ..	Ordem dos Medicos.
Spain ..	General Council of Colleges of Spanish Doctors.
Sweden ..	Sveriges Lakarforbund.
Switzerland ..	Federation des Medecins Suisses
U.S.A. ..	American Medical Association.

Delegates

Each Member-association may therefore send to the Annual Meeting of the General Assembly, two Delegates, and two Alternate Delegates and as many observers as it desires. The presence of representatives of a Member-association other than the official Delegates enables the latter to consult their colleagues on points that arise during discussion, and further, a large gathering of doctors from national associations throughout the world and of representatives of other interested bodies, will make the Annual Meeting of the W.M.A. an important and influential occasion in the medical year.

Expenses

By-laws 42 and 46. National medical associations will, no doubt, wish to consider what financial commitments, apart from subscription, are likely to be involved in membership of the W.M.A. The Committee considers that the W.M.A. should not be expected to bear the cost of the attendance of Delegates to meetings of the General Assembly, but the expenses incurred by members of Council in attending Council or committees should be defrayed by the W.M.A.

Annual Meeting, 1948

The General Assembly in Paris, 1947, will, under By-law 16(*v*), select the place and date of the Annual Meeting of the Association in 1948. When the Organising Committee met in April it received four invitations for submission to the General Assembly. They were from Canada, Czechoslovakia, Spain and the U.S.A. It appeared to the Committee that, while a meeting in the American continent might attract the South American associations to membership, it is equally likely that some European associations, most of whom are already members, would not be able to afford to send Delegates to America at the present time. The Committee therefore suggests that it might be wise to hold the 1948 meeting in Europe. The choice between Prague and Madrid is left to

the General Assembly. Dr. Zahor, in conveying the invitation of the Czechoslovak association, said that Czechoslovakia had a special claim to an early meeting of the Association because an invitation to the A.P.I.M. in 1938 had to be withdrawn under pressure from Nazi Germany. Dr. Tornel, who brought the invitation from Spain, said that but for the war a meeting of the A.P.I.M. would have been held in Madrid.

Co-operation with other Bodies

The World Health Organisation, a constituent body of U.N.O. has expressed its interest in the foundation of the W.M.A., and hopes that "a co-operative and friendly relationship may develop between the W.M.A. and the W.H.O." The Chairman of the Committee is a delegate to the Interim Commission of the W.H.O. and has every confidence that cordial relations will exist in the future between the two bodies.

As has already been stated, the Natural Sciences Division of U.N.E.S.C.O. has expressed its willingness to assist the W.M.A. in connection with financial transfers. Although the Division is concerned only with scientific organisations, the Committee believes that the contact will be useful to the W.M.A. in its general activities.

Extracts from the Articles and By-laws of World Medical Association

I. Articles

Name—The Association shall be established to succeed the Association Professionnelle Internationale des Medecins. Its name shall be "The World Medical Association."

Objects—The objects of the Association, in pursuit of which it shall use every means available to it, shall be:

(*i*) To promote closer ties among the national medical organisations and among the doctors of the world by personal contact and all other means available.

(*ii*) To maintain the honour and protect the interests of the medical profession.

(*iii*) To study and report on the professional problems which confront the medical profession in the different countries.

(*iv*) To organise an exchange of information on matters of interest to the medical profession.

(*v*) To establish relations with, and to present the views of the medical profession to the World Health Organisations, U.N.E.S.C.O. and other appropriate bodies.

(*vi*) To assist all peoples of the world to attain the highest possible level of health.

Membership—The unit of membership shall be the national medical association as defined in Article 5.

The following national medical associations shall be eligible for membership:

(*i*) Those medical associations which sent delegates or observers to the International Medical Conference in London in September, 1946.

(*ii*) Any other national or territorial medical association which is fully representative of the medical profession in its country or territory or of the members of the medical profession of a recognised ethnic group in its country or territory.

General Assembly—The general control and direction of the policy and affairs of the Association shall be vested in a body of Delegates from the Member-associations styled "the General Assembly".

Delegates and Alternates—Each Member-association shall be entitled to appoint two Delegates, who shall *ipso facto* be members of the General Assembly. Each Member-association shall also be entitled to appoint Alternate Delegates, who may attend meetings of the General Assembly and act as Delegates, provided that at no time shall a Member-association be represented in the Assembly by more than two speaking and voting Delegates.

Meetings—The General Assembly shall meet annually.

Council—The General Assembly shall appoint at each Annual Meeting a Council which shall be composed of the President, the President-Elect, and the Treasurer, all *ex-officio*, and nine members of the General Assembly elected in the manner and for the period prescribed in the By-laws.

Languages—The English and the French languages shall be the official languages of the Association.

Journal—A Journal, under the title of the Journal of the World Medical Association, may be published periodically by the Association, in the English and/or the French languages.

By-Laws

Membership Applications—An association desiring to become a constituent Member of the World Medical Association shall apply for election in writing to the Council, which, after appropriate inquiry, shall make a recommendation for the admission or rejection of the application to the next meeting of the General Assembly.

Obligations—Each Member-association shall:

(*i*) do all in its power to promote a knowledge of, and an active interest in, the objects and work of the Association.

(*ii*) reply to all inquiries and questionnaires from the Council as quickly as possible or within the time limit specified by the Council;

(*iii*) Keep the Council informed of any events or developments in its country of interest to the Association.

Subscriptions—The annual subscription to the Association shall be at the rate of 10 Swiss centimes per member of each Member-association, provided that the total subscription of any Member-association shall be not less than 1,000 Swiss francs nor more than 10,000 Swiss francs. The Council shall have power to reduce the subscription of any Member-association in appropriate circumstances.

Observers—Member-associations shall have the right to send observers, without privileges of speaking or voting, to meetings of the General Assembly. The Council shall have power to invite, at its discretion, other organisations to send observers.

THE KASTURABA GANDHI NATIONAL MEMORIAL TRUST MATERNITY SERVICE SCHEME

The following are excerpts from the observations made by the medical advisory board of the Kasturba Gandhi National Memorial Trust Maternity Service for rural areas and training of midwives.

1. The different parts of the country have yet not developed adequate hospital conscience nor have they fully comprehended for the advantage of Maternity service on scientific basis carried out by trained midwives and doctors.

2. Midwives and Public Health Nurses form the main pivot of maternity and child welfare work. Unfortunately there is a very small number of trained midwives in the country. Majority of them are confined to big towns. Places

like Ahmedabad, Delhi and Lahore have an extremely small number of midwives in private practice.

3. Midwives in the rural areas will neither have assistance and advice of doctors easily available nor facilities of hospitals within easy reach. Under these circumstances, the further interior from a city or a town a midwife is working, more efficient and self reliant she has to be. We therefore deprecate the scheme of training Dais for midwifery work in the villages. We are conscious of the need of the country and of the urgency to have trained women to attend at confinements, but the main purpose of safeguarding women from complications of pregnancy, labour and puerperium as contemplated by the scheme will be entirely defeated, if Dais whose education, training and habit of living are much below the requisite standard, are employed to carry out the work. On the other hand once they get a stamp and a seal of qualification from the Trust, they are likely to assume the role of trained midwives and forget their limitations in knowledge resulting in greater risks to the lives of mothers and infants for whose care and health they were employed.

4. We would therefore recommend that the Board should concentrate its influence, energy, finances and time on working up long time policy of training as many midwives as possible and within a minimum period.

5. Inspite of the efforts of Government and some other organisations like Infant Welfare Society, Mofussil Maternity Council, Committee of Dufferin Trust, very few women have come forward to take the training. The reasons as we see are the following:—

(*a*) The nursing profession has been looked upon by the public as not quite honourable;

(*b*) Training centres being few and situated in cities, women from the country find it very difficult to avail themselves of those facilities. Training to them becomes costly.

(*c*) During training at City centres the attractions and amenities of city life raise in them high expectations, their standard of life is made high and unsuitable for country life. Moreover, the wages offered to midwives practising in rural areas are very low and the prospects of a private practice yielding a rich harvest are not too alluring. They therefore do not leave the cities after qualifying. For fear of their daughters and sisters not returning to their home towns or villages, parents and relations do not encourage their wards to go out to take midwifery training. Most of those who are drawn to this profession at present are from sheer necessity of saving themselves from starvation or persecution of relations. The qualities required for a nursing profession are rarely found in this class.

(*d*) Working conditions for them during training and afterwards are not satisfactory. Hours of work are long, rest and recreation very little and wages are low.

6. We would therefore suggest to the Board that training centres should be started in rural areas, but within easy reach of towns in borders of small mofussil towns. The Board has excluded towns from their scheme. We are of the opinion that for training midwives, towns with population upto about 10,000 be included in the scheme from the point of view of training even though they may be excluded from routine care under the scheme. Our reasons for such a suggestion are:—

(*a*) We find that in certain provinces women are averse to going to institutions for their confinements and even though a hospital may be nearby women prefer to be in their houses and be treated by a Dai. If the training institutions are started in the interior or rural areas for a long time we may not get adequate number of patients—normal and abnormal—for teaching purposes.

(*b*) We may not get an adequate number of women from villages, in the beginning, as trainees. Much time may have to be wasted. It may however not be very difficult to get some of them from small towns adjoining the proposed training centre.

(*c*) Medical and other staff for training institutions will be more easily secured and also on easier terms if the centres are in or near a town.

(*d*) By the time these centres become popular, atmosphere created in the rural areas will be favourable for starting centres in those areas.

7. We therefore recommend that—

(*i*) The Board should concentrate on training as many midwives as it can in the shortest possible time. All its energy and finances should be directed to this purpose. Such training centres especially those where personnel for teaching would be available may be utilised for training Health Visitors.

(*ii*) All Provincial and District Committees of the Trust be asked to pool together their energy and resources to start in their areas as many training centres instead of utilising them in starting ill-equipped and ill-staffed small maternity homes of two and four beds with no proper supervision of a doctor. Such homes will create false security in the minds of expectant women and will do more harm than good to them. But if they come up to the minimum standard as of the service stations in the scheme proposed by us, they may be allowed and their working closely watched.

(*iii*) In all cases the maternity home schemes should fit into the larger scheme proposed by us.

When we are starting new organisation and activity they should be based from the beginning on sound foundation and well made plan likely to bear fruitful and efficient results. Stop gap measures have always proved handicaps in implementing main schemes and are difficult to be removed later.

8. We recommend the following scheme for the training of midwives and providing maternity service in the rural areas:—

(*i*) Training institutions with 20 beds be started in small towns with population of 10,000 or less or in rural areas within easy reach of big towns. We consider 20 beds as necessary for getting adequate number of patients and of varied type of cases for training purposes. We would all the same have no objection to any areas starting a training centre with 15 beds, with provision to increase the number to 20 in near future. Less than 15 beds we would not recommend.

(*ii*) Such a centre will be able to keep under training at one time 10-15 probationers.

(*iii*) The training centre will be on a model given in Appendix A.

(*iv*) The training centre will cater for areas within a compass of 5 miles radius.

On the circumference of the circle 4 service Centres be started on the model given in Appendix B one in each direction—N S—E W at the same time as the training centre. These Service centres will serve a further area within a circle of five miles radius and will feed the Training Centre with material for teaching.

(*v*) Extending maternity service beyond this area will have to be postponed till adequate midwives, Health Visitors and

doctors are available. A scheme of partial medical relief can be extended to them as described in Appendix 'C'.

(*vi*) An Ambulance service should be provided at each Training Centre.

(*vii*) We find too much stress is laid on securing honorary and selfless services of the people to run these institutions. As we see around us today, we are forced to believe that services should be adequately paid if honesty, efficiency and hard work are demanded from the personnel employed. This will have to be done till the training centres turn out real selfless persons with no encumbrances and devoted to service. It will take a long time before an adequate number of this type of missionaries are produced in the country. We very strongly press this point for the consideration of the Board, as the efficiency and results of the whole scheme will depend on the quality of the work of its personnel. We are at the same time conscious of the limitations of the funds and of the vastness of the problem.

(*viii*) Text-books for training midwives and nurses are available in Marathi, Gujrati, Bengali. Some one should be asked to write a book in Hindustani, with the help of these books.

9. The Provincial Committee should set up an office—Medical Relief Co-ordination Office—with a medical person with modern Public Health outlook as a Co-ordination Medical Officer. Such a person can be found from the retired cadre of the Provincial Medical Service who will have administrative experience and can be secured on a small remuneration —if not entirely honorary.

10. All services under a Provincial Committtee may be made transferable if considered necessary and feasible.

Appendix A

Training Centre for Midwives

A. 1. Each Centre will consist of:—

(*a*) Antenatal & Waiting	.. ..	2
(*b*) Lying-in-beds	.. ..	14
(*c*) Labour beds	.. ..	2
(*d*) Septic beds ..	.. ..	2
		20

2. A general out-patient with a dispensary for men,

3. A general out-patient with a dispensary for men, women, and children.

3. An infant welfare centre.

4. Training school.

B. Personnel required—

I. For the Hospital—

(1) A doctor with necessary special training in midwifery and child welfare, capable of performing a Caesarian section, preferably one possessing a post-graduate qualification of at least a D.G.O. standard.

(2) A male doctor either M.B.B.S. or L.C.P.S. for the general outpatient department and medical relief in the area around and as a help to the hospital doctor as and when necessary. Such a doctor should have taken a post-graduate course of three months in midwifery and childrens' diseases.

(3) A Matron qualified in general nursing and midwifery capable of teaching pupil midwives.

(4) 3 Midwives.
15 Probationers.
4 Ayahs.
2 Compounders & Dressers.
1 Clerk—typist, Store-keeper etc.
2 boys.
1 sweeper.
2 Cooks.
2 Kitchen servants.
1 Chokidar.
2 Dhobis.

(5) One Health Visitor—for Training Centre.

II. 1 Doctor
1 Health Visitor.
For supervision and care on service Centres.

III. Abmulance service
1 Midwife. 2 Stretcher-bearers. 1 Driver.
With necessary leave reserve.

IV. Nurses' Hostel.
2 Servants.

C. Building required:—

1. Hospital Building—with laboratory, lecture room and library.
2. An Out-patient Block, Infant Welfare Centre and an Office.
3. A Kitchen Block.
4. Nurses' Hostel for 20 including the Matron and a Health Visitor.
5. Doctors' quarters—for 3 doctors.
6. Servants' quarters for about 20, including clerks, compounders etc.
7. A Rest House for patients' relatives.

D. Sanitary and water supply arrangements.

E. Lighting arrangement.

F. Dhobi-ghat arrangement.

G. Expenses—

Capital.	*Recurring.*
Buildings.	Saries. Drugs, Dressings and
Equipment.	Instruments. Linen. Washing.
Sanitation.	Lighting & Heating. Books,
Water.	periodicals, stationery. Furni-
Lighting.	ture. Kitchen & Milk. Pupil
	Midwives allowances.
	Travelling expenses for—
	a doctor, a Health Visitor,
	a servant.
	Sundries.

H. Scale of salaries:—

1. Obstetrician—Rs. 250—20—350—Free quarters and Provident Fund.
2. Asst. Doctor—Rs. 175—20—275—Free quarters and Provident Fund.
3. Matron—Rs. 80—8—120—Free quarters & Provident Fund.
4. Health Visitor—Rs. 75—8—110—Free quarters and Provident Fund.
5. Midwife—Rs. 50—8—90.
(Uniform & Dhobi supplied or allowance of Rs. 5/- p.m. be given to the nursing staff).
6. Pupil midwife—Rs. 5/- Free board & lodging—uniform and dhobi etc.
7. Ayah—Rs. 20—2—30—Free quarters & provident fund.
8. Ward boy—Rs. 30—2—40 Free quarters & provident fund.
9. Compounder & clerk—Rs. 45—5—70—Free quarters & provident fund.

10. Sweeper, chokidar, cook, kitchen servants—Rs. 30—2—40—Free quarters & provident fund.
11. Motor Driver—Rs. 45—5—70—Free quarters & provident fund.
12. Coordination M.O.—Rs. 200/- Free quarters.

Appendix B

Service Centre

1. *Staff*—1 Midwife, 1 Ayah, 1 Servant.
2. *Building*—

Main building should have
One room—accommodating 2 beds with a bath room.
One room—for confinement.
One room—for Infant Welfare work and outpatient examination—a bath room.
Two rooms—for Midwives' residence with a bath.
2 Lavatories.
A small block for the residence of Aya and a servant and relation of a patient with bath-room and lavatories.
A well.

3. Equipment.
4. *Expenses*—

Capital.	*Recurring.*
Buildings.	Saries. Drugs, Dressings, milk,
Equipment.	etc. Lighting & Heating.
	Sundries.

5. Food—(not to be supplied to the patients or staff by the authorities). Only milk should be provided by the authorities.

Appendix C

Partial Medical Service. (Peripheral Centre).

A. Residential Anglo-Ayurvedic doctor at each centre, assisted by a Touring Medical Officer and a Health Visitor.

B. Hired Cottage.
Salary of Rs. 75—8—110 Rent for quarters and Provident Fund.
One Servant—(30—2—49).

Expenses—Salary. Rent. Drugs and Dressings. Equipment.

Equipment Necessary for a 20 Beds Hospital

20 Beds with cradles.
20 Bed-side teapoys.
20 Bed-side stools.
20 Spittoons.
20 Lotas—Brass.
20 Glass—Metal.
20 Dishes
20 Cups
Metal-brass.
10 Water jugs—copper or brass.
8 Basians—metal—copper or brass.
2 Nurses' Tables.
4 Nurses' Chairs.
2 Medicine stands 4′×5′×18″.
2 Ward Trollies—with arrangement to have a douche can.
8 Bed pans.
6 Kidney trays.
20 Matresses.
20 Pillows.
30 Yards Mackintosh sheet.
2 Labour beds.
1 Operation Table—'Powells'.
2 Instrument Tables.
1 Douche stand.
1 Labour room Trolly.
1 Anæsthetic's table.
2 Doctors' Revolving stools.
2 Stands for Lotion Bowls.
6 Bowls—varying sizes.
3 Oxygen cylinders—with one pressure gauge valve.
1 Instrument cupboard.
1 Spot lamp on a stand.
5 Cupboards—wooden for linen and medicines in spare.
2 Office tables.
1 Dozen chairs.
1 Doz. benches.
2 Stretchers.
1 Pt. lifting chair.
½ Doz. stools.
½ Doz. stands with 3-4 shelves. (Wooden).
1 Medicine counter.
6 Dispensary shelves.
1 Doz. Buckets.
2 Baby weighting machines.
1 Adult weighing machine.

Instruments.

Syringes. Rubber goods—gloves, hot-water bottles and ice caps, rubber tubing, stomach tube, bladder catheter etc. Saline transfusion apparatus. Glass Douche cans. Medicines, Injections and Dressings, linen.

Kitchen.

Cooking utensils.
Storing utensils.
Dishes and cups. Buckets. Lotas.

Nurses' Hostel.

20 Ordinary beds.
4 Tables & Mirrors.
1 Big size reading table.
2 Doz. Chairs.
or mattings bedddings small stools for reading.
½ Dozen Buckets.
2 Dozen lotas.
2 Dozen glasses.

Doctor's Quarters.

½ Doz. beds. 3 Dressing Tables. 3 Office Tables. 1 Doz. Chairs. 3 Reclining chairs. 3 Cupboards.
Instrument Sterilizer. Dressing Sterilizer.

CURRENT MEDICAL LITERATURE

Penicillin in Early Syphilis

Sternberg and Leifer (*J.A.M.A.*, **133**:1, 1947) write that an analysis was made of the Army records of 1,400 men with early syphilis treated with 2,400,000 units of penicillin in aqueous solution or isotonic solution of sodium chloride prior to Feb. 1, 1945.

There were no severe toxic reacions, and all patients completed the prescribed schedule of treatment. Approximately 84 per cent of the patients were observed for over nine months following treatment. Satisfactory progress was obtained in 94·3 per cent of 600 cases of seronegative primary syphilis, in 89·9 per cent of 564 cases of seropositive primary syphilis and in 83·0 per cent of 236 cases of secondary syphilis.

The cerebrospinal fluid was examined following treatment in 719 patients: it was normal in 714 and abnormal in 5 (0·69 per cent).

The high over-all satisfactory progress rate of 90·6 per cent, admittedly tentative because of inadequate following-up attributed to the considerable proportion of cases of the disease in the primary stage (83·1 per cent) and to the fact that the patients were probably treated with penicillins of satisfactory potency.

The rate of failure was approximately 5 per cent in the 790 white patients and 15 per cent in the 610 Negro patients, and the implications of this disparity in respect to reinfection were discussed.

Penicillin in Congenital Syphilis

Platon and others (*J.A.M.A.*, **133**:10, 1947) give in the following lines the summary of their observations:

Among 252 infants with congenital syphilis, a single course of penicillin administered over a period of seven and one-half to fifteen days has yielded satisfactory results in 73 per cent, unsatisfactory in 9·1 per cent; and in 17·9 per cent results are still classed as uncertain. Empirically judged severity of syphilis or cerebrospinal abnormalities had little prognostic meaning; the latter improved remarkably after treatment. Dosage schedules employing more than 40,000 units of the drug per kilogram of body weight yielded better results than those employing lesser amounts. There is some evidence to suggest that larger dosage schedules administered over a longer period of time may be more effective. Dramatic clearing of active manifestations of infections during or soon after treatment is the rule. Clinical relapses have been infrequent, with only 6 encountered at intervals of three to eleven months after treatment. As time passes, the number of cases with unsatisfactory or uncertain results diminishes while there is a proportionate increase in that of symptomatic and serologic cures. Changes to seronegativity are not symptomatic and serologic cures. Changes to seronegativity are not unusual a year or more after the completion of treatment, though most babies become seronegative between the fourth and twelfth months following therapy.

Judged by outcome, all planned treatment schedules employing sodium penicillin alone have been remarkably effective. Their efficacy, rapidity and safety in this "exquisitely chronic" disease have amply demonstrated that this drug is the best single agent yet employed for the treatment of congenital syphilis.

Penicillin therapy has not altered the familiar contention that treatment of the baby is far more important than treatment of its syphilis. Hazards inherent in socioeconomic environments responsible for a high incidence of this disease undoubtedly account for the high fatality rates seen under any form of treatment. Although syphilis or its direct sequelae must be regarded as potent contributory factors, deaths are almost always adequately explainable on nonsyphilitic bases.

Until the true makeup of commercial penicillin has been clarified or until crystalline fractions are evaluated, we offer the following broad suggestions for therapy:

1. Young syphilitic infants should receive a total dosage of at least 100,000 unit per kilogram of body weight.

2. This amount should be divided into approximately one hundred and twenty equal intramuscular injections given over a period of twelve to fifteen days.

3. These injections should be given at intervals of no longer than three hours around the clock.

Penicillin in Neurosyphilis

Rose and Solomon (*J.A.M.A.*, **133**:5, 1947) write that two hundred and thirty-six patients with neurosyphilis were treated with penicillin between Feb. 1, 1944 and April 1, 1946. Of these, 210 are now being followed. The clinical results in the first 100 cases followed one year or more are presented. The results of examination of the spinal fluid of all patients on whom an examination was obtained at least three months after treatment, as well as the 100 cases followed a year, are tabulated. The majority of patients were given a short course of fever therapy in combination with penicillin. No other antisyphilitic treatment was given. If more treatment was needed, administration of penicillin was repeated. Each patient was given 3,000,000 units of penicillin intramuscularly as a course of treatment. Intervals of injection and the number of units per injection were varied according to plan. Clinical results of the 100 patients followed one year or more show 62 improved, 35 with no change and 3 worse. Thirty-eight patients were retreated with penicillin. Following treatment the cell count and total protein contents of the spinal fluid return toward normal in from three to six months and six to nine months respectively. The strength of the Wassermann titer decreases more slowly. Of the 100 patients followed a year or more, 11 have a negative Wassermann reaction. The need for retreatment in a little more than one-third of the cases followed one year or more indicates that 3,000,000 units of penicillin combined with a short course of fever therapy is not optimum treatment for late symptomatic neurosyphilis.

Therapeutic use of Bal

Sulzberger and Baer (*J.A.M.A.*, **133**:293, 1947) write that the researches of Peters, Stocken and Thompson led to the use of 2, 3-dimercaptopropanol as a detoxifying agent against the arsenicals of chemical warfare. This agent could not only prevent the toxic action but reverse it, provided that "the toxicity had not been too long established". As this 2, 3-dimercaptopropanol was first developed by the British as a decontaminating and neutralizing agent against lewisite, it was designated "Bal", for the "British anti-lewisite" and this has become the generally accepted name.

The following summary gives some of the important effects of Bal against arsenical damage:

1. In both laboratory animals and human beings the damage to the skin due to arsenical vesicant agents of chemical warfare could be prevented by the preceding application to the skin of Bal preparations.

2. In both laboratory animals and human beings the damage to the skin produced by arsenical vesicant agents of chemical warfare could be arrested and probably even reversed

by the local application of BAL preparations two minutes to two hours after exposure to the damaging agent.

3. The systemic poisoning produced in laboratory animals by various arsenical agents, including oxophenarsine hydrochloride, could be effectively counteracted by BAL. This was shown by a significant reduction in mortality rate and a longer survival time of the BAL-treated poisoned animals accompanied with an increased urinary excretion of arsenic. While this beneficial action of BAL in systemic poisoning could be achieved by application of BAL to the skin, the parenteral administration of the drug was much more effective.

4. *In vitro* experiments on trypanosomes and spermatozoa demonstrated that organisms which had lost their motility and showed early degenerative changes due to arsenic poisoning regained their motility and their normal appearance after addition of a dithiol.

In other complications of arsenical therapy treated with BAL, Eagle again reported the most extensive and up-to-date series of cases, which may be summarized as follows:

Toxic encephalitis—Of 55 patients, of whom 40 were either convulsing or in coma at the time of start of BAL therapy. 44 recovered completely within from one to seven days and 11 died. In some case resulting in death, delay of therapy or too small a dosage of BAL appeared to be partially to blame for the result.

Agranulocytosis—There were 11 cases, with recovery in 10 and 1 death.

Aplastic anemia—In 3 cases there was no beneficial effect from BAL.

Jaundice—Of 14 patients, 5 showed prompt response to BAL, 7 evidenced no effect from BAL and there were 2 in whom the effects were debatable.

Massive overdosing of oxophenarsine hydrochloride—Of 4 cases, there were 3 with prompt response and 1 ending in death (the patient received too small a dose of BAL).

Arsenical fever—There were 44 cases, with prompt recovery in all.

The following is the schedule of dosage: In severe complications 3 mg. per kilogram is given in each injection (1·8 c.c. of a 10 per cent solution of BAL for a patient weighing 60 Kg.). For the first two days six injections are given at four hour intervals; four injections are given on the third day and two injections thereafter for ten days or until complete recovery. In mild complications 2·5 mg. per kilogram is given in each injection (1·5 c.c. of 10 per cent solution of BAL for a patient weighing 60 Kg.). For the first two days four injections are given at four hour intervals; two injections are given on the third day and one or two injections thereafter for ten days or until complete recovery.

Pharmacologic studies in human beings have shown that side effects barely begin at the 2·5 to 3 mg. per kilogram level when four injections of this dose are given at four hour intervals on two successive days. The incidence of side effects increases rapidly when the dose is raised to 4 and 5 mg. per kilogram. All the side effects observed even at these higher dosage levels have been of a temporary nature. They included nausea, vomiting, headache, burning sensation of the lips, mouth, throat and eyes, pain in the teeth, lacrimation and salivation, muscular aches, burning and tingling of the extremities, feeling of constriction of throat and chest and elevation of systolic and diastolic blood pressure. These side-effects usually are at their maximum at fifteen to twenty minutes after intramuscular administration of the BAL preparation.

When applied to the skin BAL is a primary urticariogenic agent (whealing agent), and cutaneous allergic sensitization to BAL does occur. Thus far these effects have not in any case interfered with the use of the drug in the treatment of arsenical complications.

Barbiturates have been recommended as an antidote for the more severe side effects of BAL.

THERAPEUTIC TRIAL OF PENICILLIN IN TETANUS

LEWIS (*Ann. Int. Med.*, **25**:903) gives in ten following lines the summary of his observations:

1. Fifteen cases of tetanus of three to 11 days' duration were treated by intramuscular injection of penicillin in doses of 20,000 units every four hours. Most of the patients received a total of 500,000 units or more. One patient was given 150,000 units in injections about her wounds.

(*a*) Of this group seven patients recovered, three (including the patient injected locally) improved, and five died. In none of the cases treated was there observable alteration of the course of tetanus which seemed attributable to the use of penicillin. Wound infections were generally benefited, and the indication for use of the drug in complicating infection is clear. However, there was not tendency toward reduction of mortality in severe tetanus and no improvement in cases which had failed to respond to antitoxin. Recovery and improvement were gradual in the cases which survived, and the clinical course was comparable to that in other cases which recovered after only prophylactic doses of antitoxin or without any treatment whatever.

2. Four patients who had received or who were given known amounts of antitoxin were observed under conditions identical with those of the penicillin group. These patients showed a striking clinical change after administration of antitoxin One of the four was comparable in many respects to a patient treated with penicillin, and the favourable response to antitoxin was in sharp contrast to the failure of penicillin to affect the course of the disease.

3. Twenty-seven patients on general service who had received undetermined amounts of antitoxin were observed during the 18 day period of investigation. Of these patients, most of whom had been given small and presumably inadequate amounts of antitoxin, 16 made complete recoveries, seven others improved and three died. One patient declined progressively and probably terminated fatally.

4. The relatively high mortality in the first group was attributable largely to the selection of patients with severe tetanus in order to test the possible efficacy of penicillin. It would obviously have been difficult to evaluate a drug in a series in which recovery would have been anticipated under any type of therapy.

5. On the basis of this study there are no indications that commercial penicillin is an effective agent in the treatment of tetanus. In vitro evidences of antibacterial action are not supported by clinical indications of a similar effect in vivo. The possibility is mentioned that other penicillin fractions or larger doses may be effective.

PENICILLIN AND SERUM IN THE TREATMENT OF TETANUS

KENNEEY (*M. J. Australia*, **33**:842, 1946) reports on the recovery of a severe case of tetanus is attributed to the combined use of large doses of antitetanic serum (ATS) intravenously

and penicillin subcutaneously. The patient, a male aged twenty-four years, was not admitted to hospital until eight days after the infection had been acquired and three days after symptoms of tetanus had first appeared. Prior to admission to hospital he had had no ATS. Treatment consisted of large doses of ATS intravenously: an initial dose of 240,000 units (U.S.A.), followed by two injections daily for the next five days, the dosage ranging from 50,000 to 150,000 units. The total amount of serum given was 1,156,000 units (U.S.A.) At the same time the patient was given 10,000 units of penicillin subcutaneously every two hours, to a total dose of 720,000 units. The subcutaneous route was chosen because any attempt at intramuscular administration provoked severe spasms. The patient eventually made a complete recovery.

Peritonitis of Appendicular Origin Treated with Massive Doses of Penicillin

Crile (*Surg. Gynec., & Obstet.*, **83**:150, 1946) reviews fifty cases of proved peritonitis of appendicular origin which were treated with penicillin. The dosage of penicillin was 100,000 units given every two hours intramuscularly for two to six days followed by smaller amuonts for three to four days. The only fatal case resulted from thrombosis of the mesenteric vessels. In spreading peritonitis the infection was controlled by penicillin. In localized peritonitis with or without formation of a mas the infection was controlled; and the mass eventually was absorbed. In no case was it necessary to drain an intra-abdominal abscess, and there was no spontaneous drainage into the bowel. It has been suggested that action of large doses of penicillin in mixed infections is against the virulent gram-positive cocci. Escherichia coli is known to inactivate penicillin. Hence large doses of penicillin must be given for long periods if effective action against the cocci is to be obtained. Escherichia coli in pure culture usually is of low virulence and, if the virulent gram-positive cocci are controlled by chemotherapy, the peritoneum is able to localize and eventually absorb infections due to the remaining Escherichia coli organisms.

Carcinoma of the Adrenal Cortex

Goldstein and others (*Am. J. Dis. Child.*, **72**:563, 1946) report a case of a carcinoma of the right adrenal cortex occurring in an infant of 8 months with an enlarged clitoris, a palpable abdominal mass and the presence of hirsutism. An operation was performed with successful removal and full recovery of the patient.

The present case is the only one on record in which a successful operation for adrenal carcinoma has been performed on so young a child. This is the first case in which biopsy of the adrenal glands was utilized to substantiate a pathologic diagnosis, a procedure which led to early surgical intervention and cure. This procedure is, therefore, recommended. Those patients who manifest abnormal androgenic activity have a great chance of survival. Those patients who manifest abnormal metabolic hormonal activity have lesser chance of survival, and their course usually terminates with a manifestation of adrenal insufficiency. An approach to the adrenal gland through the lumbar region proved satisfactory in this case.

The cases in which there was successful surgical intervention have been brought up to date, the patient in the second of such cases being (to the best of the authors' knowledge) still alive and well at the age of 21, nineteenth years after the removal of a 1,500 gm. neoplasm.

The world's literature has been searched for cases of adrenal carcinoma in which there was the adrenogenital syndrome and 54 cases have been found including our report of an additional case.

Eosinophilia in Malignant Tumors

Isacson and Rapoport (*Ann. Int. Med.*, **25**:893, 1946) reviewed from the literature nineteen cases of pronounced eosinophilia associated with malignant tumors. To these are added 15 cases, making a total of 34. In 90 per cent of all the cases, matastases were present and in an additional 7 per cent they were suspected but not proved. In only one was metastasis neither demonstrable nor suspected. That dissemination may have been present though not clinically manifest is possible, as illustrated by two of their cases. Eosinophilia, when associated with a malignant tumor, with other causes ruled out, is indicative of dissemination of the malignant process. The prevailing theories as to the pathogenesis of eosinophilia in malignant tumors are discussed. No definite cause has been established as yet.

Lactic Acid Injection in Osteoarthritis

Mawson (*Brit. M. J.*, **2**:691, 1946) stimulated by the work of Waugh on intra-articular injection of lactic acid with procaine into the hip, recently gave this treatment to 26 patients. From 15 to 20 c.c. of a stable solution of 0·2 per cent lactic acid with procaine having a hydrogen ion concentration of 5·2 is injected into and around the hip joint on each occasion. A similar amount may be injected into the knee joint, but the wrist joint will only take amounts varying from 2 to 5 c.c. After the injection the patient has to put the joint through all its movements. Two days of bed rest is prescribed. A second injection is given after seven days. Subsequent injections up to six are given if needed. All the 6 wage earners were able to return to work. Of the remaining 20, who were mostly housewives, 18 experienced considerable relief.

Penicillin Therapy in Pyogenic Dermatoses

Hopkins and Lawrence (*Am. J. M. Sc.*, **212**:674, 1946) write that local penicillin therapy was rapidly effective in the majority of cases of impetigo, ecthyma and the pyogenic complications of dermatophytosis.

Intramuscular penicillin was effective in furunculosis and hidrosadenitis.

One-third of the cases of folliculitis of the beard cleared at least temporarily under penicillin. Concentrated local applications combined with intramuscular injections often appeared necessary.

Secondary infections in eczematous dermatitis were controlled in 40% of cases, but sensitization developed frequently after local therapy.

Penicillin was seldom effective in seborrheic dermatitis, intertrigo, folliculitis of the trunk or extremities or acne.

The Failure of Breast Feeding

Waller (*Arch. Dis. Childhood*, **21**:1, 1946) writes that one of the tragedies of our civilisation is the failure of breast feeding and tries to determine why failure occurs in about half the mothers. The statistics of the Ministry of Health show that 80 per cent of the babies leaving maternity hospitals and 95 per cent of those born outside are wholly breast fed at the end of the first fortnight of life, yet three months later only 50 per cent are still breast fed. Primiparas contribute largely to the

failures. Of 436 primiparas seen consecutively at infant welfare centers in East London 28 per cent at the end of one month, 38 per cent at the end of two months and 42 per cent at the end of three months had ceased to feed their children, giving as a reason only that "the milk left them". Waller gives two major reasons. The first is that the nipple is structurally defective, but he believes that this defect can be easily remedied by wearing a glass shield with a controlled opening, which firmly supported over the breast so as to press the nipple through the opening. The second reason is that the breasts develop a high milk pressure and become hot and heavy and enlarged to perhaps twice their size. The skin is tightly stretched and glistening, and the veins are prominent. At the height of the engorgement milk cannot be obtained by the child, and only with difficulty is it removed artificially. The mother feels great discomfort and suckling damages the nipples and may lead to abscess of the breast.

The treatment in the extreme stage of engorgement is manual relief of the breast by the mother or nurse, who with thumb and finger compresses the lacteal sinuses. The excess of milk is given to the child. Waller's practice is to prevent this stage from developing by teaching all mothers to massage the breasts during the last stages of pregnancy so that if there is any trouble she can treat herself.—*J.A.M.A.*, **133**:341, 1947.

Vitamin A and Leukoplakia Vulva

Hyams and Bloom (*Am. J. Obstet & Gynec.*, **53**:214, 1947) on the basis of the finding of little or no free hydrochloric acid in the gastric contents of 18 patients with leukoplakia vulvae investigated the effect of vitamin A in the treatment of this condition. They found that 14 of the patients responded to such treatment. The dosage of vitamin A was 250,000 to 500,000 units daily by mouth, supplemented by injection of 50,000 units twice weekly. No indication is given as to how long it was necessary to continue treatment, except the statement that "in some the subjective symptoms were relieved within several weeks; on other it was necessary to increase the amount of vitamin A, both orally and by injection, before any relief was manifested". Reference is also made to the fact that six of the patients had been followed for two years since they completed treatment, and in none had there been any recurrence. Of the four patients who did not respond, two had diabetes, one had syphilis, and the fourth had a "cardio-renal-vascular lesion". In none of the patients was any other form of local or constitutional treatment given except 15 minims (1 c.cm.) of dilute hydrochloric acid thrice daily. Attention is also drawn to the fact that during the period of investigation, which extended over four years, no evidence of malignant changes was observed in any of the patients.

Etiology and Treatment of Heartburn of Pregnancy

Wiley (*Am. J. Obstet. & Gynec.*, **51**:221, 1946) writes that the basis of the heartburn of pregnancy is not an organic lesion but a functional disturbance of gastric physiology due to the shift in the anatomic position of the stomach produced by the expanding uterus. Forcing of the greater curvature towards the cardia doubles the gastric emptying time and results in reverse peristalsis. In addition, as pregnancy progresses there is atony of the cardiac sphincter. The acid gastric contents acting on the esophagus results in the burning sensation which is referred to the heart region.

Prostigmine by mouth was tried in 20 pregnant women complaining of heartburn. Relief was complete in 15 cases and partial in 2 cases. Increased gastric peristalsis and emptying rate were believed to be responsible for the relief. Side reactions were minimal. Prostigmine had no effect on the pregnancy.

The Psychoneuromuscular Control of Enuresis

Ziegler (*J.A.M.A.*, **132**:809, 1946) recommends a psychoneuromuscular exercise which has been stated to cure enuresis in one to two weeks. The child (or adult) is instructed to stop and start the flow of urine two or three times during each day-time micturition. The procedure exercises the psychoneuromuscular mechanism, and by helping to establish the dominance of the higher psychic centres over the purely reflex neuromuscular mechanism, the cerebral dominance soon passes over into the unconscious period of sleep. The procedure is suitable for all over the age of six and in some cases may be used in younger children. With small children it is well for a parent to stand by during the daytime micturition and to coach the child in the exercise of stopping and starting the flow of urine. The case of a woman of twenty who had several times postponed marriage on account of enuresis, and who rapidly cured herself with the recommended exercise, is recorded.

Tuberculosis: the Prophylactic Value of BCG Vaccination

Hertzberg (*Tubercle*, **28**:1, 1947) records the results of an extensive investigation undertaken by the Tuberculosis Department of the Oslo Public Health Authority to determine the value of mass BCG vaccination as a preventative against tuberculosis. The fulfilment of three conditions is necessary in order to justify recommendation of mass BCG vaccination: (1) complete absence of danger; (2) duration of effect; (3) proof of value. As regards (1) the author states that among 12,000 individuals who were vaccinated no tuberculous disease that could be attributed to the BCG bacillus, which is the bovine type, was noted. In 38 cases in which tuberculosis occurred the infection was proved to be of the human type. (2) Uusing Heimbeck's method the duration of tuberculin positivity was highly satisfactory, *i.e.*, 95 to 98 per cent. after five to six years. It was noted that with bigger doses of BCG the positive results were stronger and lasted longer, and that cases with the largest and most troublesome reactions at the vaccination site gave the biggest positive results and the longest duration: in 1945, using a BCG vaccine from the Pasteur Institute in dosage of 0·10 mgm., positive results were obtained in 96·8 per cent. of 320 persons, but troublesome local reactions occurred. Since April 1946, the dosage has been reduced to 0·05 mgm., the exact figures for which are not yet available, although it is stated that this may prove to be the optimal dose. (3) A comparison of the BCG vaccinated cases for 1943 with the average Oslo population of the same age-groups 0·50, per 1,000 per year, showed that the death percentage in the unvaccinated population was 0·62, and in the BCG group 0·11; infective tuberculosis in the population groups 3·43 and in the vaccinated 0·34, and closed tuberculosis in the BCG vaccinated 3·09 compared with figure of 9·49 in the population groups. In conclusion it is stated that BCG mass vaccination gives from 75-90 per cent. protection, and this justifies its use, in conjunction with other measures, in the fight against tuberculosis.

VI BIHAR PROVINCIAL MEDICAL CONFERENCE

The 6th Bihar Provincial Medical Conference was held at Dhanbad under the Presidentship of Rai Bahadur Dr. A. N. Sarkar, Patna. A large number of member from various districts attended. The Scientific Section was presided over by Rai Saheb Dr. S. K. Chatterjee. A number of medical papers were read. The Conference was inaugurated by Mr. P. C. Ghosh, M.L.A. The Exhibition held in this connection was opened by Dewan Bahadur D. D. Thacker.

* * * * *

The following Presidential Address was delivered by Rai Bahadur Dr. A. N. Sarkar on the 5th April, 1947:

LADIES AND GENTLEMEN,

I thank you for the honour you have done me by electing me president for the conference this year. I cannot however congratulate you on your choice. In my opinion a president should be a person who has studied at least some problem affecting the profession or the health of the community. Judged by this standard each one of my predecessors was a good selection. Some as Civil-surgeons could speak with authority from personal knowledge on problems of public health and of the profession. One as a professor could deal with medical education. Others as general practitioners with long and wide experience were well fitted to talk about the difficulties of the independent medical profession. I cannot claim any of these qualifications, for the greater part of my professional life was spent, so to say, in purdah. But it is no good quarrelling over spilt milk. Only I would request you to remember my words when you elect the next president and avoid repeating the mistake.

Perhaps it will be news to many of you that I am no stranger here. Thirty years ago—before many of you were born—I came to work at the Dhanbad Hospital and spent two very happy years there. The memory of those years is still very sweet to me. I still remember the gorgeous Palas and the fragrant Mohua. I still remember how I used to see the Parasnath hills from my bed and how from the station platform it looks like a barrier lying across the railway lines. I have still some good and old friends at Dhanbad. Only two years ago I came here and was glad to meet my old friends and see the vast expansion the Hospital and the town had undergone since that time. I thank you for giving me this opportunity to meet my old friends again.

LEST WE FORGET

Let us at the commencement of the session remind ourselves of the aims and objects of our association. I should like to recommend to you the adoption of this practice at all our annual meetings. I feel it will help us to assess what we have been able to do so far, what is left undone and what should be our plan for the coming year and above all not to lose sight of our ideals.

The aims and objects of our association are:—

1. Promotion and advancement of the medical and allied sciences.
2. Improvement of Public Health.
3. Maintenance of the honour and dignity of the medical profession.
4. Co-operation between the members of the profession.
5. Upholding the interests of the medical profession.

For the attainment of these objectives a sixteen fold programme of work has been laid down. More than half of these we have not been able to take up yet. I should like to direct your attention to a few that should engage your immediate attention.

We must have a home of our own. Without a permanent residence the activities of the association are bound to be severely handicapped. In fact I am convinced that the proper pursuit of the activities of the association is impossible without a permanent home. One or two guest rooms could be provided in it, which would be an inestimable boon to mofussil members. There we could have our library too and the office of the journal, which are also important items on the programme of our association. The journals got in exchange will then be available to all the members of the association. Perhaps the senior members will be so good as to send there any journal, they may subscribe, for the use of the juniors. There in an evening over cheering cups of steaming tea, under the gentle influence of Queen Nicotina, in the company of kindred spirits one could relax and dream—dream of the ideal man of medicine and dream of what medicine could do for man. In informal talks in such a friendly atmosphere many medical problems would be discovered and solved. The adjacent library would be handy in these discussions. The junior members in their difficulties, professional or otherwise, will get sound advice from experienced seniors. Informal meetings, like these are a great force in developing a sense of unity and a spirit of cooperation amongst the members which is one of the principal aims of our association. Informal and friendly discussions I think are of greater use in finding solutions of our problems than formal discussions.

The organisation of a medical corps providing medical relief during epidemics and in times of emergency is I think urgently required. Unfortunately for your province the necessity for such a corps was acutely felt in recent years. I would recommend to you to form at least a permanent nucleus of such a corps so that work could be started immediately an occasion arose.

WHAT MEDICINE COULD DO FOR MAN

Glimpses of what medicine can do for man we find in the pages of modern medical journals. It would seem that from the first inception of life in the mother's womb to the final exit from this world, the man of medicine could help and guide every human activity at every step.

Antenatal care, prophylaxis of preventable diseases, nutrition, chemotherapy, physiotherapy, radiotherapy and the other marvels of modern medicine and surgery are well known to every body. But who could dream that there is a medical aspect of shoe making and motor car construction—that cooking and icecream making are within the doctors legitimate jurisdiction? In the fields and factories, schools and offices, palaces and cottages the doctor is every where and is busy—busy not only in treating the sick and the injured but busy in observing and recording and searching out the handicaps and advising their removal, so that work may be pleasanter, better done and more fruitful and thus increase the nation's wealth—busy in looking for human and other factors in the causation of accidents and suggesting safety measures so that the nation's wealth, its men, money and machines may be saved. And so on and on goes the never ending tale. For this the whole profession has to work as a team, each man doing his bit—perhaps the bit he likes best perhaps not. But who cares? To a sportsman what matters is the game and the match. It is the small man who grumbles for a place.

We also could do the same. But that requires careful planning and steady application.

To begin with we must realise ourselves the full extent of the service we could render. Along with this we must let others know of the immense possibilities of our science, so that people will demand more and more for our services. When the demand becomes strong and persistent enough the powers that be will be compelled to take action. And only then shall we be afforded facilities for fulfilling our mission.

THE CALL OF THE I. M. A.

In such an undertaking individuals can do nothing. United action alone can achieve success. That is why the I.M.A. came into being. Come then and join us and together we shall march to the goal.

COMMUNAL DISCORDS

But the goal can never be reached unless there is peace in the land. The beneficent mission of medicine will not succeed in an atmosphere of communal discord and communal strife. In the recent happenings in our province the doctors were afraid to go to patients of a community other than their own and the patients were afraid to come to doctors of a different religious persuasion. One was afraid to move about in the streets. One was not sure that the man by his side would not stick a knife into him. Patients living at a distance were afraid to leave their homes. On returning they

might find themselves without their homes and families. In such an atmosphere of suspicion, distrust and insecurity the art and science of medicine can never thrive. After the communal riot many of my friends, Hindus and Mussalmans, complained that the number of patients had gone down by 75%. So even from the purely selfish motive of monetary gain it is to our interest to prevent communal discords. And we doctors are the best suited to allay these suspicions and distrusts, and inspire confidence. Even during wars the doctors remain neutral. For them humanity is divided into two classes—doctors and patients. Between them quarrels should never come. When a sick child or a mother in travail asks for the help which only the doctor can give, the doctor's duty is clear. Gentile or Jew makes no difference. I appeal to you in the name of our science to fight by precept and practice all communal discords and communal riots.

Health and Disease in the Coal-Fields

A medical conference at Dhanbad would be without any meaning if it did not deal with the problems of health and nutrition of the coal workers. Unfortunately I have no personal knowledge of the life in the collieries. I had seen of course many cases of severe accident when I was working in the Dhanbad Hospital thirty years ago and since then I have always been eager to know the life in the coal fields as it really was. Till recently all my information was from story books and newspaper reports. One trade union leader has described the collieries as the death-pits of our country. I was not sure however that these reports were not exaggerated. But recently I saw a copy of a Report on an Enquiry into Conditions of Labour in Coal Mining Industry in India by the Director, Cost of Living Index Scheme, Government of India. I had time only to glance through the book but what I saw there makes me feel that all that I had read before was but too true. The whole report is extremely painful reading. What I am going to tell you is mostly a short summary of some of the findings and comments found in that report and meant to give you some idea of the real life of coal workers. The enquiry began in October 1945. Some improvement might have taken place. But things could not have changed very much in the course of the year and a half that have elapsed since then.

It is unnecessary to state to medical men the factors which affect the health of an individual or a community. I shall deal with some of the important ones only.

Housing

The coal workers' dwellings are known as "Dhowrahs." Each consists of a room with a verandah and is meant to accommodate 3 persons. In actual practice it was found in 1944 that double the number were living in each Dhowrah. Each room forms one of a block of 10—20. The blocks are generally built back to back. Most of them have a cubic capacity of 1000 cubic ft. but the average height is only 7 ft. In some cases the members of the Bhore Committee had to crawl to get inside a Dhowrah. The rooms are generally dark. I wonder if any examiner would pass a student if he were to prescribe such dwellings. They are standing examples of how not to build. They are built of cement and concrete. Not the floors however which are mostly kutcha. That would be too great a luxury. Now imagine to yourselves what it would be like to live in one of these rooms in May and June.

No latrines or urinals are provided in most collieries. The whole appearance of these colonies is most forbidding. The Bhore Committee remarks "In such quarters even the observance of the ordinary decencies of life is impossible." You will understand how that would affect the mental hygiene of children. The Bhore Committee have therefore recommended dwellings fit for human habitation.

Bhore Committee's Recommendation

For a single man—one room 10′×12′×10′ with a verandah 8′×8′×10′, with community kitchen, latrine and bathing places.

For a family—2 rooms, each 10′×12′×10′ with a verandah 8′×8′×10′, kitchen, bath room and latrine; if with grown up children at least one extra room.

Water Supply

The dhowrahs get their water-supply from common taps. The taps provided are not always adequate. In some cases there is one tap for 500 persons. Water is supplied only at specified periods in the morning, afternoon and evening. In some colonies there is no arrangement for supply of drinking water. No arrangement exists for washing and bathing. Generally surface tanks near mines contain water pumped out from the mines and this water is used for bathing and washing. The Commission of enquiry remarks "on the whole the water supply for purposes of domestic needs is altogether inadequate".

Inside the Mines

Safety measures:—Very few mines have provided electric fans for ventilation underground, a thing that is done all the world over. In a few mines in Assam steel helmets are provided to guard the workers against roof falls; but here in Jharia even the supply of bamboo hats is the exception rather than the rule. Safety measures are no more than just enough to evade the law. For instance the provision in regard to First Aid leaves much to be desired. In a well known mine the First Aid box when opened was found to contain two dirty enamel pots and some waste paper. In another there was no bandage. In a third the bandages were as black as the coal surrounding them. In several places the key of the box was not to be found as the Sardar in charge was not available. In most small mines the First Aid box is kept on the surface. Provision of stretcher is an exception rather than the rule and in some cases a charpoi serves the purpose of a stretcher. It is needless to point out to medical men the importance of proper first aid arrangements and provision of stretchers in coal mines, where risk to life and limb is so great.

The lighting in the mines is generally poor and the miner's lamp still continues. In most cases it happens to be the primitive naked "Kuppi" or "Mugbatti". This is bound to have considerable adverse effect on the eyes of the miners.

Mechanisation

Coal cutting machines which make the work of the miner less strenuous and safer are rare in India. While in the United Kingdom it is as high as 91% in India 23% had coal cutting machines in 1944.

Drinking Water

In none of the important coalfields does one find any provision for the supply of drinking water either underground or on the surface, though supply of drinking water in the mines is compulsory under the mines act. In most cases the workers were found drinking water percolating from the seams. The report says—'It seems surprising that so ordinary an amenity as the supply of drinking water is not provided when its cost to the management is almost next to nothing.'

Sanitation

In none of the coal-fields provision has been made for any sanitary arrangement underground. Generally the workers use the abandoned work places in the absence of sanitary arrangements. In this connection Miss Margaret Read has stated that besides fouling the air this lack of sanitation causes the soil to be impregnated with hook-worm which infects the barefooted miners easily through their feet. This exposure to infection continues all the time they are in the mine, while eating of food underground is an additional source of infection. The employers do not provide boots to the workers despite the fact that in many mines water flow about on the floors and this must widely spread hookworm disease.

Pit-Head Baths

Ulcers and injuries are pretty common amongst colliery workers. Miners working with their hands are apt to develop

sores on their palms and knees while cutting coal and these sores become festering wounds because of the grime and dirt accompanying the work in a coal mine. It is of the utmost importance therefore that the miner cleanses and washes himself thoroughly after the end of the day's work. This is also important from the point of view of prevention of hookworm disease. In European countries adequate and up-to-date arrangements generally exist for a bath after a day's work. In Jharia Coal Fields some mines have provided proper baths, though in two of the collieries investigated it was found that the baths were not working. Let us hope they are working now. Generally speaking the workers are expected to wash in an adjoining tank or from an open hydrant on the surface which draws out the mine water.

Medical Facilities

The Jharia Mines Board of Health had prepared 20 years ago a list of drugs and appliances to be kept in the dispensaries attached to the collieries. The list, which nobody could call extravagant, has not been revised since that time and naturally does not contain even the sulpha group of drugs. On the whole with the exception of some of the larger collieries medical relief is entirely inadequate. The absence of x'ray apparatus even in some of the hospitals and larger dispensaries is noticeable. What the lack of microscopes and x'ray apparatus means will be evident from the statement of sickness in 53 collieries in Bihar investigated in 1945. Out of a total lac thirtyseven thousand and odd cases over one lac were returned as "others" i.e. undiagnosed. Only 64 were returned as T. B. and 58 as hookworm infection. There is no mention of silicosis which is one of the occupational diseases in coal mines everywhere. Without microscopes and x'rays it is impossible to diagnose silicosis and hookworm infection and early cases of pulmonary tuberculosis. From what has been stated above it is evident that almost text book conditions exist in the collieries for the spread of hookworm infection. And it is impossible to believe that only 58 persons were suffering from this infection in the Jharia Coal Fields. Malaria is still rampant.

And What of the Doctors

By law every colliery employing 30 persons or more must employ a doctor. The Bhore Committee states that some collieries employed doctors on a part time basis on Rs. 15/- to 20/- P.M. This would be refused by a peon at the present time and it is not unreasonable to expect that the service which the miners would receive for such salaries would be comparable in value. Without drugs, without instruments and appliances, you can well imagine the plight of the doctor when facing his patients. How can he command in such circumstances the respect and confidence of the patients, so essential to a doctor for the proper performance of his work? Here in the coal fields he is known as a babu and his employer treats him as such. To expect a medical man to maintain the dignity and the honour of the profession on a pittance like this is to ask for the impossible. Pandit Nehru has said "for a hungry man the words truth and God have no meaning". *Dāridra Dosho Gunarāshi Nāshi.*

The coal workers' standard of living is much too low considering the strenuous character of their work. Their diet consisting mainly of cereals with little of protective food, is judged by any standard, extremely poor. Most of them go about in semi-nude condition, and no wonder. The average earning of a miner including dearness allowances, attendance bonus and free rice comes to about Re. 1/- for a full day's work. But on an average he works only 4½ days in a week. This absenteeism however is not due to any fault of his own, It is beyond his power to do more; A British miner who gets a weekly wage of about Rs. 80/- (£6-9-0) per week, works only five days in a week. And recently the British Technical Committee on Coal Mining has recommended five days' work in the week for a miner. Considering the poor physique and malnutrition of the miners and the unsatisfactory working condition, 4½ days is probably the utmost that could be expected of a miner here. This fact is admitted even by experienced colliery managers.

Even the whole of these 4½ days' wage the coolie does not get. Trickery and corruption dog him at every step but I do not want to go into the details of that shameful story.

Drunkenness is common among the coal workers. One of the two main causes of drunkenness according to Prof. Sigerist is social and economic. Misery, poor living conditions, lack of education and recreation facilities drive a man into drinking. It has been found that with improvement in the economic conditions the consumption of alcohol goes down. Absence of cinemas, theatres or places of recreation leaves the coal workers only the grog shops to seek solace after a hard day's exhausting labour. The Bhore Committee says "raising the standard of living accompanied by the provision of educational and recreational facilities on as wide a scale as possible seems to be essential to ensure success of any anti-drink campaign."

The Future

A brighter future however is about to dawn. The Mines Welfare Fund has been inaugurated. It will fetch annually an income of about 75 lacs of rupees to be spent on:—

1. Improvement of Public Health and Sanitation.
2. Prevention of diseases.
3. Provision of medical facilities and the improvement of existing medical facilities.
4. Water supply.
5. Improvement of housing standard and amelioration of social conditions.
6. Recreation and transport facilities.

The following are going to be taken up at once:—

1. Malaria control.
2. Construction of five regional hospitals at a cost of 9 lacs and a Central Hospital costing 2 lacs.
3. Improvement of water supply.
4. Construction of pit-head baths.
5. Starting of vegetable farms.
6. Provision of recreational facilities.

Anti-malarial work has already been started.

Ladies and Gentlemen, At the beginning of the address I recounted to you the aims and the objects of the association and I have tried to draw a picture, however, inadequate of the conditions of health in the Jharia coal-fields. My purpose was not to regale you with a thriller but to direct your attention to a sphere which to my mind presents an immense field for the activities of the medical profession and for the realization of most of its aims and objects. Individual efforts will be of no avail. It is an organised body which can hope to do something. The I. M. A. as the foremost organised body can voice the opinion of the medical profession in the country as a whole and we who are but a branch of the I. M. A. should take up the problems in real earnest. And we must start at once. As mentioned before health projects costing huge sums of money annually are going to be taken up. But the authorities seem to be of divided opinion as to which of the items of the programme is to be given priority. The budget of the Mines' Welfare Fund has been criticised by the Indian Coal-fields Committee. This lack of unanimity in the opinion of the different authorities is bound to affect the drive in the execution of the programme. In such a predicament who can advise the authorities better if not the I. M. A.? I call upon every medical man of the province to flock to the standard of the I. M. A. and so strengthen it that its mighty voice shall prevail in all medical matters in the country.

I should like to say a few words about the proposed hospitals. The coal mines are also veritable mines of material for the practice, study and research in medicine in all its branches. Where can one find such a large number of cases for Orthopedic Surgery, Occupational diseases like Silicosis and Miner's Nystagmus, and scope for Obstetrics, Gynæcology, Pediatrics, Industrial Medicine and Industrial Hygiene? India is being industrialised at a rapid pace. Here in the Jharia coal fields many industries have already been started, many more have been planned and many more will grow up in the near future. I hope this will be remembered when planning these hospitals. We must insist on having real experts at the head of every department. Arrangements must be made for post-graduate study in the various subjects peculiar to coal industry such as Orthopedic Surgery and Industrial

Medicine. At the Annual Conference of the I. M. A. at Cawnpur Principal Banerjee pleaded for special arrangements being made for the teaching and study of Industrial Medicine and Surgery in the proposed Medical College, there. There is no reason why Bihar should not do the same and take a lead in the matter. This if done, will provide for all the Graduates we can produce. I say Graduates, for Bihar will refuse to produce any more licentiates and thus help to perpetuate the split in the medical camp.

Sisters and Brothers, year after year your President and Secretary bemoan the smallness of the membership of the Association. The reason probably is that medical men find nothing in our programme to inspire them. Here I have tried to point out to you work which should satisfy every taste and every need. Those who want money will find enough scope for making it. Those who love to practise the art of medicine in any of its branches will find any amount of cases to work on. Those who are fond of research will find all facilities here, for money should not be wanting for the purpose. As for those restless spirits who will not live by bread alone they will find here work which will satisfy the most insistent cravings of their souls. To do away with squalor, drunkenness and disease and bring back the smile of health, happiness and peace to the faces of so many of our fellow travellers in this vale of sorrows is something to live for and die for.

II ORISSA PROVINCIAL MEDICAL CONFERENCE
CUTTACK

The second session of the Orissa Provincial Medical Conference was held under the auspices of the Orissa Provincial Branch of I.M.A. on 13th., 14th. and 15th. April, 1947, in the Orissa Medical College Compound, Cuttack, under the presidentship of Lt.-Col. A. N. Chopra, O.B.E., I.M.S., Director of Health and Inspector General of Prisons, Orissa.

Representatives of the medical profession from various parts of the province attended the Conference and took part in its deliberations.

The Reception Committee had made excellent arrangements for the board and lodging of visitors.

An exhibition of medical goods and appliances was held in this connection in which several firms from outside the province participated.

There was a special cinema show arranged for the amusement of delegates and members of the Conference, on the last day.

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The following speech was delivered by Rai Bahadur Dr. A. P. Sinha, M.D., D.T.M., Civil Surgeon, Balasore, at the inauguration of the II Orissa Provincial Medical Conference:

Brothers and sisters in profession, I thank you very much for the honour you have shown in asking me to open the conference.

This is a great occasion that so many of us have assembled here to give our united thoughts over a vast and one of the most important problems of our province and of our profession. Going to solve this vital problem we must have one aim towards which all our individual thought be mobilised and we must strive to attain it. This aim is "Radiant health is our birth right". Next to food this is the next most important problem to be solved. It has always been said and it is always true that the real Indian life does not exist in the big cities and towns alone but in the distant villages as well where the true picture of our problem of health can be diagnosed in its true colour. I do not mean thereby that we have been able to solve the problem in the towns but it shows the vastness of the scope and the magnitude of our task. The existing system to tackle the problem cannot even be said to be the skeleton on which to construct, because many of its limbs have not yet been formed and many of them are rickety on which no sound structure can be made. In the distant village, our attempt, in public health, nutrition, medico-social problems in all the branches and even in the curative side, has been very feeble. I do not mean that we have not progressed fairly rapidly but we have yet a long way to go. It cannot be gainsaid that our problem is intimately connected with the economic problem of our province but we must unitedly strain all our nerves to reach the goal. The Sections of Research and Drug making have remained completely blank. For want of provision for Research we have made no provision for our progress. We know almost nothing to make any of the drug we always use and spend a large amount from our feeble resources to purchase them from outside. Our *modus operandi* for the fulfilment of our "Aim" should not be confined to our Province only but work in harmony with the other Provinces of India and ultimately with the World Health Organisation of U. N. O.

Regarding the present general condition of our profession and of our status, it is nothing but a reflection of the general economic condition and the educational problem of the province. We are clamouring for a long time to improve them but we have not yet got them. We do not want that any one should be partial towards us but we want equality and fair play in pay and prospects as compared to other branches of administration and we demand that men of our profession must be taken in as Secretaries both in the L. S. G. and Finance Departments to tackle our problems and not by non-medical men. Our Health Minister also shall be a man of our profession. Our grievances and memorials remain unattended and unanswered for years together and give rise to a feeling amongst us that we are always neglected. The feeling amongst us reflects greatly on our individual work and thereby on the whole machinary of the Health organisation of the Province. The plea is often taken that medical men are bad administrators but what is the result of the administration of these administrators? It is not their fault also. They simply cannot understand our view points and are too much engrossed in multifarious problems and they cannot be specialists in everything. So misunderstanding everywhere remains unsolved.

Next, uniformity in service in all the branches of the Provincial Health Organisation should be given effect to without any further delay to foster healthy competition. The best qualified men should only be taken for special jobs.

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The following Presidential Address was delivered by Lt.-Col. A. N. Chopra, O.B.E., I.M.S. at the II Orissa Provincial Medical Conference held at Cuttack:

Ladies and Gentlemen, I feel greatly honoured to preside over the Second Conference of the Provincial Medical Association. I thank you for the honour you have done me. We are really sorry to have missed Dr. B. C. Roy's presidency at the eleventh hour. The eminent member could have well fitted in today's chair. I will try my best to make up what we could not get and we shall do all our best to come up to our expectations at this Conference.

Association

The Association is meeting at a Conference for the second time. Only last year it had its inauguration and so this Conference gives us a happy and encouraging assurance, and effort well begun, well organised and well put in. One can confidently hope for an achievement of the desired objectives. Unfortunately there has been in the long past no united effort which makes the task an extremely difficult one, and this tells every member where he stands, where and how he should proceed, if he has to reach the goal. His goal is where his noble profession enjoys recognition responding adequately to its nobility. His profession should find an honourable place which is its due in the social map of his country. For this we need unity that never surrenders to opinions or differences.

Divided Rank

There is unfortunately some reflection on the equality of membership in the profession and this at times leads to adverse reaction on a joint effort which is so essential to start from a common base. The members are practitioners divided in several ranks, licentiates and graduates, employees and private, health officers and medical officers and so on. These differences weaken the profession. There should be only one class of membership as they all belong to one profession with one objective—community welfare. It should be possible to break

the ice and budge the gap between the several ranks. I do not wish to go deep into these differences which are founded mostly on prejudicial considerations that never do justice to the nobility of the profession. With careful and well thought out planning and intelligent and skilful organisation we should be able to rise above all retarding influences and stand in a constructive and progressive common field.

Postwar Schemes

The plans, popularly known as postwar schemes are ready. It is premature to prophesy what future may bring us but it is certain that all the medical and public health fields have been given due consideration and we intend to proceed duly to achieve the best with the available resources which are unfortunately too inadequate. How do our plans help us to satisfy our needs?

Education

The greatest need is want of educational facilities. There was only one educational institution, the Orissa Medical School, which could not naturally afford any training other than licentiate course. In spite of the huge difficulties we had to face in securing men and material during the war, we opened a College of our own by converting the Medical School. Facilities have been provided here to train candidates for the M. B. B. S. degree examination and also to impart a condensed course to the licentiates to bring them up to the level of graduates. With these provisions and with the school courses having been stopped we will be not only increasing the efficiency of medical service but also gradually be bridging up the gap between the two ranks, Licentiates and Graduates.

It is too early to think of providing special courses in the new college. Without specialists and special facilities of treatment, medical relief will be nothing better than dispensing of patent medicines. It should be possible to make necessary provisions in our college as soon as we can. In the long run we should be able to provide facilities for advanced training in hygiene and public health.

We have started a Midwifery School to train midwives and we hope to establish a Health School to afford training for health visitors, nurses, midwives etc.

Medical Relief

As for arrangements and facilities of medical relief we have to improve our hospitals and dispensaries and equip them with up-to-date provisions. As a first step in this direction we have provincialised all the Subdivision Hospitals. We need more hospitals and dispensaries and we have provided to open a dispensary for every 10 square miles or for a population of 20,000, but such provision is not our success but on the other hand indicates lamentable failure that we could not control disease at its origin. Our outlook should change. It should not be preventive and cure of disease looked at from two independent angles of vision. While the former takes positive action against origin of disease, the latter takes negative action by curing it and the sum of the two is zero. This happens when the two proceed in different directions. If they go hand in glove in the same direction the result is something real and marvellous. Besides the routine attack on sickness and disease we have got to deal with epidemics that flare up so often and take a huge toll of life. We have, therefore, to provide to meet the daily routine and the periodical or seasonal emergency of disease. In fact this is the base on which our postwar plans stand.

Sanitary and Medical Stores

No technician, however much skilled he may be, can do without his tools and implements. Consistent with our activities of public health and medical relief we need sanitary and medical stores. For this we should have industries of our own producing and supplying the stores of such quality and quantity as we want. These industries can be successful if only there is co-operation of the medical profession. While the capitalist takes care of the commercial principles, the medical man looks after the quality of production. And then, the products should be available to the public at reasonable prices so that even the poor are not deprived of the benefits.

Indian Medical Science

Now I propose to go a little into administration and the sciences. We know, the Indian Medical Science has done a good deal in the medical field by initiating in our country the scientific system of medicine. It has been sharing a considerably heavy burden in our day to day progress. With the political changes that are imminent, we should prepare to carry a heavier weight than ever before.

Lt. Col. A. N. Chopra, o.b.e., i.m.s.
President, II Orissa Provincial Medical Conference, Cuttack

Provincial Services

We have the provincial and subordinate services both in the medical and public health cadres. In our future plans we envisage only one cadre and we contemplate to ensure efficient service. Seniority of service will have its due consideration but never in supercession of merit. Efficiency depends on merit. I am not condemning seniority. I only lay stress that merit should always be in the forefront if efficiency is to be attained.

Many of the employees and even the general practitioners have a tendency to settle in towns and only a few ever walked in rural tracts. This has affected both the members of the profession and the large number of people in rural areas. The members get crowded in towns with the result that many are unemployed or their private practice earns little for them. The people in villages get little medical relief. If the doctor hesitates to step into a village, it is not due to want of capacity and ability to work but lack of facilities in rural service. We have therefore, to improve these facilities if our rural schemes should be successful.

Future Doctor

The outlook that one serves to prevent disease and the other to cure it and that both serve to claim their fee or pay, should go. The old order should give place to new. We are now in the days of a new order. We are on the doorsteps of independence and we shall work unitedly as servants of our country. Our contribution in the political field is not little. No nation weak in health can be strong politically or economi-

cally. We have therefore on our shoulders serious responsibilities in serving independent India. We shall always be true to our motherland and do all what she expects of us.

Quackery

The doctor in his day to day work has to face a great enemy in quackery. Many importers assume name-sake degrees and to escape punishment they add a word at the end. The ignorant public are easily duped by them and the result is increase of misery, suffering and death. It should not be misunderstood to be accusing the old systems of medicines of our own country. I have great respect to our ancient sciences. But on this account we should not be sympathising with the imposters who misuse the sciences. There should be law to protect the genuine science from these quacks. And also we should provide facilities and encourage genuine men to go deep into the reality of our ancient science and improve them with the benefit of modern knowledge.

Doctor's Pay

To think of the medical profession as one thriving on patient's money, is most inhuman and not at all consistent with the most noble ethics of the profession. It should not therefore be misunderstood if I say the doctor should be paid. Labour should always be rewarded in its full recognition if one wishes to maintain and improve the efficiency of outturn. The doctor's labour can never be adequately repaid. He sacrifices all personal comfort and exerts to the best of his physical and mental capabilities to serve his patient. His time is not his own, but his patient's. In return he does not expect any thing very high but only a reasonable recognition that keeps him free from want of money and encourages him to concentrate his attention on his service to humanity. Usually he is underpaid, even after war ended and peace has set in, the prices, have not come down although many expected otherwise. The low paid employee works on thorns; he can neither neglect his work for some paying side-concerns nor can he stand upon what his legitimate work pays him. Besides he has to work always and never rest when he has to deal with people where disease is always manifest.

General

In this province specially, poverty plays a free role and disease its hideous part. The daily average income might have recently increased but it always fall much short of expenditure met on the barest necessities of life. The average man goes almost without any cloth to cover himself properly and struggles hard to overcome the anguishes of semi-starvation. The dingy cells with no ventilation or sun light, where he manages to press himself into a crowd of residents, worsen the condition. Above all, he is ignorant and superstitious. Thus there is in abundance disease and suffering against which the doctor has to fight day and night. He rescues the people from disease and relieves them of suffering. There lies the nobility of the profession. We shall always be true to the call of our noble profession. This is the real objective of the Association that has met at conference to-day.

I once again thank you all for the honour you have conferred on me in selecting me to the Presidential Chair.

I GUJARAT & KATHIAWAR PROVINCIAL MEDICAL CONFERENCE

The first Gujarat & Kathiawar Provincial Conference was held under the Presidentship of Rai Bahadur J. P. Modi at the Premabhai Hall, Ahmedabad on the 26th and 27th April, 1947.

In addition to the local medical practitioners about 20 delegates from the province and also about 200 local gentry attended the conference which was inaugurated by the Honourable Mr. G. V. Mavalankar, who laid great stress on the importance of selfless work of the medical practitioners. Dr. Motibhai Patel, Chairman, Reception Committee, read his address of welcome. He was followed by Dr. H. M. Desai, who proposed Rai Bahadur J. P. Modi to preside over the deliberations of the Conference. Telegrams and letters from persons regretting their inability to attend the conference were then read by the Organizing Secretary. Dr. R. B. Mehta, Secretary, read his annual report, and lastly R.B. J. P. Modi his Presidential Address. The Subjects Committee then met to discuss the resolutions which were passed in the open session on the next day.

At the Scientific Section which was held in the afternoon on both the days under the Presidentship of Dr. G. B. Mankad the following papers were read:—

1. Retained Placenta by Dr. Miss S. C. Pandya.
2. Treatment of Glaucoma by Dr. S. P. Divatia.
3. Action and Role of Roentgen Rays in the Treatment of Carcinoma of the Breast by Dr. R. K. Mehta.
4. Exploratory Laparotomy by Drs. S. B. Shah and M. D. Patel.
5. Tuberculosis by Dr. Parmar.
6. Staining of Malarial Parasites by Dr. Dani.
7. Vitamin B Defficiency by Dr. Dani.
8. Prevention of Obstetric and Gynaecological Disorders by Dr. S. B. Anklesaria.
9. Penicillin by Dr. G. B. Mohile and Dr. H. S. Khanderia.

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The following Welcome Address by Dr. M. D. Patel, F.R.C.S. (ENG.), D.L.O. (LOND.) etc., Chairman of the Reception Committee, was delivered at the First Gujarat & Kathiawar Provincial Medical Conference on the 26th April, 1947:

Hon'ble Mr Mavalankar, the President, Delegates, Fellow practitioners, Ladies & Gentlemen, It is my proud privilege to welcome you to day to this First Gujarat & Kathiawar Provincial Medical Conference. I am sure many of you who have come particularly from outside, had to suffer a lot of personal inconvenience and more so to your patients. But I hope you and your patients will be amply rewarded by your attendance at the Scientific Section of this conference. Those of you who are also interested in other aspects will find interest in the resolutions we are putting forward at this conference.

I need hardly say how grateful I feel on your behalf and myself to Dada Saheb Mavalankar for consenting to inaugurate this conference. Recently he had hard work at New Delhi. To-day he is just come from inaugurating the All Regions Conference yet he has spared time for us. The country knows him now, we all know him well for years. We in Ahmedabad are proud of him. I will like to quote one of his many advices which I had the good fortune to receive. It was in 1932 when he was interned and when I wrote a letter that we were facing a bad undeserved criticism for our work at the V. S. Hospital, he wrote to me to say that if you are depressed by worst criticism from people, what guarantee is there that you will not be puffed up when people will speak well of you. Do your work and rely on God.

I am sure the advice was a correct one. But I must admit at the same time that it is peculiar of people of Ahmedabad to speak good of everyone of outside Ahmedabad and of what is not Ahmedabad. No one is immune. All our workers have had their share of the criticism. For people and things of Ahmedabad, the Ahmedabadi has very little respect, till he is recognised by the country. We the medical people also have got the habit of looking down upon things which are produced in our own country. It may be because we were under foreign sway for a century and a half, with its training of undermining our own confidence in our own men and things. Ladies and Gentlemen, things will soon change in just over a year. We have to be ready to face the responsibilities attached to our freedom. The political leaders remind us of it often, but merely hearing them, is not going to do any good unless we all act. We are members of a responsible and noble profession. During these years of stress and strain due to war and its aftermath many business have suffered in morality. I am sure in this period of money-racketeering we have held the torch of moral strength and not yielded to many temptations of money making by our profession. We have yet to hold our heads high for a short while till the times return to normal. I know many of you have had hard times particularly those of you who are in the services, but you will agree with me that money is not every thing.

So far we have been few and we have mostly crowded into the big cities. The medical degree training was so far given only in the city of Bombay, so many of us, even though

we came from villages, never returned to them as the city life charmed us and raised our ambition. Now the colleges have been opened in Ahmedabad and Poona. Gradually the charm of Bombay will vanish. Many of those coming from villages should return either to their own or neighbouring ones, if they really want to serve the people. Due to over crowding in the cities our social status has suffered as many of us have to underrun our fellow practitioners for economical reasons. The shrewd businessman takes full advantage of it and I am sorry to state that our social status as a profession in this city is not as it ought to be.

DR. M. D. PATEL, F.R.C.S
Chairman, Reception Committee, Gujarat & Kathiawar Medical Conference, Ahmedabad

Ladies and Gentlemen, on the other hand, you are greatly needed in the villages where people are too willing to take your advice and services to honour and respect you. It is there that the future doctor should think of working. My sincere and heart-felt congratulations are to those of you who have started your work in the villages. The only difficulty is about the education of your children, which I am sure will soon be remedied now by our own Government by starting special hostels and giving extra facilities in the cities for children of the workers in the villages.

It is the duty of the cities to look after the villages. Whenever the municipalities run public institutions they should be open to all without any distinction for the people of that particular city alone. In this connection, I should draw the attention of the Bombay Municipality for admission to the Gordhandas S. Medical College as when deficit occurs in the budget the municipality approaches the Bombay Government for money. There is no reason why the facilities created by the Bombay Municipality should not be extended to all people of the province.

In the uplift of the villages, the medical men will be needed all in all. I need hardly describe the unhealthy and insanitary conditions existing in the villages as you are probably all aware of. So far we have been in the habit of putting the blame on the alien Government. Now we cannot do the same and have to do things ourselves. The teacher and the doctor are two important persons in the village and with their noble professions have to be the pioneers in the village uplift. So far the Government servants have had their share of awe and consequent respect, but now they will be in the position of paid servants while the doctors with his accommodating fees to his individual patient will be the most useful and respected worker for the villages.

The new agricultural developments and devices and social legislature also will improve the lot of the farmer and it is my conviction that the future village doctor will be far better socially, economically and above all the real servant of God.

The recent speech of the Health Minister of the Government of Bombay at the Convocation of the College of Physicians and Surgeons of Bombay shows that the Government is arranging for Ambulance medical services in the villages and Cottage Hospitals in the important centres in the areas. The need for medical men for all these purposes will be great and I am sure the Government will have to start more medical colleges for the training of medical men.

We have at present four nurses under training at the V. S. Hospital under the Kasturba Gandhi National Memorial Trust and there is demand for more accommodation under this trust. They are really nice and sincere workers as they have got a good background training under the guidance of Shreemati Saraladevi Sarabhai at Vaghjipura. When they are ready they will work in the villages as midwives and health inspectors and advisers. Their presence in the villages will be an asset to the village doctor.

We have a great shortage of nurses on the whole and it is my fervent appeal to everyone of you to advise the suitable candidates to take up this noble profession and raise its standard.

As far as the city of Ahmedabad is concerned, I am convinced that it is going to be a very big centre in the near future. When the Gujarat University is developed—thanks to the Ahmedabad Education Society—and the province comes into its own, Ahmedabad important already as it is for its textile and other industries, will be still more important as it seems that there is already an exodus from other provinces where the political upheaval is considered unsafe for security of life and property. The new civil hospital when ready with 1000 beds, will add greatly to the existing facilities available to the public of Ahmedabad and the district around. The city is very badly built in places, with no open spaces and with its overpopulation is suffering badly from the scourge of T. B. The need for a tuberculosis hospital is very great indeed and out of its many old and new millionaires one should come forward to have this need met with by building a hospital for the same.

With these few remarks out of many problems for Gujarat, I thank you all for giving me this opportunity to welcome you all and request Dada Saheb Mavalankar to inaugurate the conference.

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Presidential address delivered by Rai Bahadur Jaising P. Modi, at the Annual Conference of the Gujarat and Kathiawar Provincial Branch of the Indian Medical Association held on the 26th April, 1947:—

Ladies and Gentlemen,

I offer my sincere thanks to the Executive Committee of the Gujarat and Kathiawar Provincial Branch of the Indian Medical Association for the honour they have done me in electing me to preside over the deliberations of the first conference of their branch. It is not merely a platitude when I state that the honour ought to have gone to a younger man, who is more conversant with day to day needs of the present generation of medical practitioners. Having not been in actual medical practice for the last forty years and having also retired from Government and University services for the last thirteen years I am out of touch with the various problems affecting the medical profession. I am, therefore, conscious of my shortcomings and limitations. However, with your help and co-operation I trust that I shall carry out successfully my presidential duties.

We mourn the loss of those medical friends who died during the course of the year, and our sympathies go out to the members of the bereaved families. The Indian medical profession is much poorer by the death of Sir Upendra Nath Brahmachari, M.A., M.D., Ph.D., who was a great scientist and earned an international reputation by discovering Urea Stibamine, a drug used in the treatment of Kala Azar. Rai Bahadur Dr. B. N. Vyas, a Gujarati by birth, but domiciled in the United Provinces of Agra and Oudh, only recently gathered together among his forbears. He was an all-India figure, was once President of the Indian Medical Association, and was Honorary Treasurer of the Lucknow University for several years. We also feel a personal loss in the deaths of Drs. R. P. Dalal and M. Bhagat. Dr. Dalal was one of the great surgeons of our city, was Vice-President of the Ahmedabad Medical Society, and took a leading part in organizing successfully the annual conference of the Indian Medical Association held in the city a few years ago. Dr. Bhagat was a premier practitioner of this city and held important offices in the Ahmedabad Medical Society.

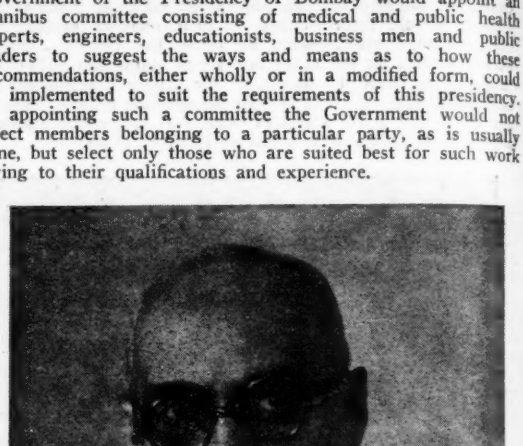
A medical practitioner does not recognize caste, creed or colour, or even friend or foe in the treatment of his patients, and yet it is an irony of fate that Dr. Jhaveri, who was innocence personified, had to meet his death along with his maternal uncle at the cruel hands of the rioters on the outbreak of a communal disturbance on the first July, 1946.

The Gujarat and Kathiawar Provincial Branch of the Indian Medical Association was inaugurated by Dr. Jivraj Mehta on the 25th March, 1945. Uptil now only 12 branches have joined the provincial branch from the whole of Gujarat and Kathiawar. I am convinced that we cannnot achieve anything nor can we exert any influence in the province in matters relating to medical relief and sanitation unless all qualified medical men are organized and speak with one voice. Hence I earnestly appeal to every qualified medical man to become a member of the Provincial Branch and to establish branches in those towns and cities where there are none. I need not enumerate the advantages of these branches, where the members can meet together, hold clinical meetings to discuss important and complicated medical and surgical cases and subscribe to medical journals for the benefit of the members.

It is true that a Licentiate Medical Association has been functioning as a separate organization in our city, although medical licentiates and graduates have been peacefully working together and taking joint action in questions affecting the medical profession as members of the Ahmedbad Medical Society ever since its establishment in the year 1902. A separate organization was perhaps necessary to safeguard their own interests, as a very large number of them used to be absorbed into the Government service, but now things have entirely changed, and most of them have been private practitioners. Hence there can be no valid reason why the two associations should waste their time and energy by functioning separately, especially when their aims and objects are the same. I implore them with all the emphasis at my command to merge into one body.

During the second great world war the proverbially poor physique of the Gujaratis has deteriorated a great deal owing to the lowered vitality caused by scarcity of articles of diet and consequent ravages of preventible diseases, but it is a matter for regret that our benign Government did very little to encourage research for finding out substitutes which would yield as much nutrition as cereals and other foodstuffs which were and are still scarce except a propaganda campaign "to grow more food". On the contrary, the Ministry of Health in Great Britain took timely precautions to solve the problem of nutrition and food supply some time before the commencement of the war, and we are informed that an average man in Great Britain has shown not only no deterioration but marked improvement in health during this world war.

With the cessation of the Great Global War every country has been engaged in post-war planning of short and long terms. In this country, the Health Survey and Development Committee, popularly known as the Bhore Committee, have forwarded to the Central Government their recommendations covering a very wide range of subjects, such as public health, medical relief in rural and urban areas, medical and nursing education, health services, medical research, etc. Many of these recommendations fall within the purview of the Provincial Governments. It is, therefore, hoped that the Government of the Presidency of Bombay would appoint an omnibus committee consisting of medical and public health experts, engineers, educationists, business men and public leaders to suggest the ways and means as to how these recommendations, either wholly or in a modified form, could be implemented to suit the requirements of this presidency. In appointing such a committee the Government would not select members belonging to a particular party, as is usually done, but select only those who are suited best for such work owing to their qualifications and experience.



RAI BAHADUR DR. J. P. MODI
President, Gujarat & Kathiawar Provincial Medical Conference, Ahmedabad

The people of Gujarat are very grateful to the Provincial Government for converting the B. J. Medical School into a College and for stopping admissions into L.M.P. and L.C.P.S. classes from June, 1946. This college has received recognition from the University of Bombay for a course of study for the degree of M.B., B.S. for the first two years. It is, therefore, very essential for the Government to build a new college and hospital well equipped with laboratories, etc. within the next year, if they are anxious that the University should not withhold its recognition. At the same time I would suggest that the buildings be so constructed that they might be capable of further extension, whenever necessary.

It must be borne in mind that one medical college is not sufficient for the province of Gujarat, as several thousand qualified medical men would be required at the rate of one doctor for a population of at least 1500 (in England the proportion of doctors is one per 1000 persons), if it intended to provide medical aid in all its forms to every family in rural and urban areas. There should be at least four more medical colleges, *viz.*, one in Ahmedabad, one in Baroda, one in Rajkot and one in Jamnagar. Even then it would take several years before the desired number of qualified medical

men is reached. However, a beginning must be made in that direction.

There should be no difficulty in opening one more medical college in Ahmedabad, the foremost industrial city in the province, which boasts of about 80 textile mills and many other smaller factories, and which pays annually nearly ten crores of rupees as income-tax. The philanthropic mill owners can easily raise a fund of a crore of rupees for a medical college, which would be unique in the east. Out of this fund twenty-five to thirty lacs should be sepnt for constructing the college buildings and the recurring expenditure might be met with from the interest of the remaining amount of Rupees seventy to seventy five lacs. Vadilal Sarabhai and other associated hospitals can be utilized for clinical study for the present. This college would be a centre for the study of Industrial Medicine. Owing to so many mills and factories there would be enough material for research in the subject of Industrial Medicine, which would ultimately benefit the mill and factory owners, as their production will increase owing to the improvement in the health and efficiency of labour. During the course of his visit to India Professor A. V. Hill said, "The industrialists of this country appreciate the importance of science and research, but they believe that it is the duty of the paternal Government to contribute towards their cost, while their business is to derive benefit out of scientific researches." May I request the philanthropic mill owners to remove this notion, and to help liberally in the foundation of a first class medical college equipped with upto-date laboratories?

In addition to the medical colleges, there should be a College of Pharmacy, a School of Tropical Medicine and an Institute of Hygiene in this city. It is a matter for great pleasure that the Ahmedabad Education Society is seriously contemplating to establish a College of Pharmacy from June, 1947.

There is a great deal of controversy over the medium of instruction in our colleges. There is no doubt that instruction through a foreign language is the most unnatural and is a great handicap to our students, who often memorize their subjects without understanding them. I do not think that there is any other country in the world, where university education is imparted through a foreign language. I also feel ashamed that I have to address you in a foreign language.

From my own experience as a university teacher and examiner for many years I am convinced that the candidates would not commit serious mistakes in their answers to question papers, and would not fail in such large numbers as they do now, if they were taught and allowed to answer questions, especially in the oral and practical examinations, in their mother-tongue. I have often noted in the oral examination in Forensic Medicine that a candidate fumbles and commits silly mistakes simply because he is unable to express himself properly owing to want of sufficient knowledge of the English language, while he is able to answer the very question quite correctly if he is allowed to express it in his own vernacular. I need not say that I used to follow this system. I have also found the students of the Faculty of Medicine in Osmania University answering questions more intelligently, as the medium of instruction in that university is Urdu.

I have been advocating for several years that instruction in colleges must be imparted through the student's mother tongue, but no attempt should be made to translate technical terms in the vernacular by coining jaw breaking words of a Sanskrit or Arabic origin, and the vernacular must be enriched by importing freely technical terms, which are recognized all over the world. I would also suggest that the text books in Medicine and allied branches of science be printed in Hindustani, the national language of this great sub-continent or else we shall be stopping our progress by being unable to communicate with scientists and medical men of other provinces, and shall be victims of narrow provincialism. It must also be remembered that English is a very rich language and is the recognized international medium of communication; hence it should not be neglected, but it must be taught as a second language in secondary schools and even in colleges. Besides, if you wish to be in constant touch with the scientific world, you will have to print medical and other scientific journals both in Hindustani and English, so that foreigners may come to know what advancement you have made in medicine and other allied subjects.

During recent years the courses of study in the Faculty of Medicine in the University of Bombay have been revised so often that it will be presumptuous on my part to suggest any new alterations. However, I make bold to state that reorientation in the teaching of basic and clinical subjects is very necessary, as our chief object is to turn out general medical practitioners. A course of seven years including two years in a college of science after the Matriculation examination is much too long, especially when it is known that a very small number of students is able to pass examinations at the first trial. The course must be reduced to five or six years at the most. In this connection I wish to bring to the notice of the Government and the University the following few recommendations called from the report of the Goodenough Committee on the subject of medical curriculum which was published in July, 1944:—

"Elementary physics, chemistry and biology should be taught at school as part of general education, and continued at the medical school as part of the course in anatomy and physiology. Pre-clinical subjects should be pruned of some detail and more closely co-ordinated with each other and with clinical studies. In the clinical period the main emphasis should be on basic principles and methods and on the future requirements of the general practitioners. Much of the teaching of operative surgery and gynæcology should be reserved for the post-graduate training of specialists. In the undergraduate period the chief emphasis in surgery should be on principles, and on the recognition, early treatment, and ultimate effects of conditons commonly met with in general practice. The committee recognizes the difficulties raised by the growth of specialism in the teaching of general medicine and surgery, and recommends that to facilitate co-ordination the teaching centre should be organized into divisions of (1) pre-clinical studies (2) pathology, (3) medicine, (4) surgery and (5) obstetrics and gynæcology, each with academic heads. Senior teachers, whether whole-time or part-time, would have as now the unfettered control of the management of their patients. The importance of social medicine, psychiatry and child health is stressed and the desirability of students' residence during part of their training is pointed out. The undergraduate course should last four and a half years of which the first two should be pre-clinical. It should terminate in a final examination conducted by the university and be succeeded by a compulsory year of house appointments, on satisfactory completion of which the students would be admitted to the medical register."

Necessary arrangements must be made to provide special facilities for post-graduate work in every medical college, so that it may not be necessary for a medical student to go to a foreign country for such study. The foreign post-graduate qualifications should have no preference over the indigenous qualifications.

I would further suggest that a chair of History of Medicine be created in every medical college to encourage a post-graduate study in the subject of History of Medicine.

I am very happy to hear that the Provincial Government have given their consent to the establishment of the Gujarat University at an early date. I do hope that it would be a teaching university and not an affiliating or examining body like the University of Bombay. I would suggest that the university be called the University of Ahmedabad or Ahmedabad University, instead of the university of Gujarat or Gujarat University, and only those colleges which are situated within the limits of the city of Ahmedabad be placed under the direct control of the university, as far as teaching and administration are concerned. Thus, the faculties of Arts, Science, Medicine, Law and Commerce would be able to function at once by taking over the control of the existing colleges in the city. There should be another teaching or unitary university at Anand, which should be the centre for training in agriculture, veterinary medicine and technology. There should be two more universities, one in Baroda and another in Rajkot, in the province of Gujarat including Kathiawar. Research must be one of the chief objectives of these universities, and there should be co-ordination in the research of various branches of science to avoid duplication. Every facility must be given to the teachers and professors for carrying out research in their special subjects. The field

of research in our country is still lying uncultivated. I appeal to the multimillionaires of this city to follow the noble example of Tata, Carnegie and Rockefeller to found scholarships for research in subjects affecting human welfare.

As an Indian I take a patriotic pride in the Ayurvedic and Unani (Tibbi) systems of medicine, a heritage from our ancient sages, who were the first to enunciate the Tridosh Philosophy of Vat, Pitta and Kapha, which was accepted all over the civilized world as the basis of normal reactions of the body and of the treatment of diseases. I am aware that big medical schools and hospitals were attached to the ancient universities of Nalanda and Takshashilla (Taxilla), which attracted students from foreign countries for the study of Ayurvedic medicine, and where research was carried out on a large scale on indigenous and imported medicinal plants. These systems spread far and wide to other countries especially of the West, where they developed into modern medical science which, on account of far-reaching scientific discoveries, has brought about a complete revision of the old conceptions of the physiological functions of the body and of the causation and treatment of diseases. On the other hand, owing to religious prejudices and other reasons which need not be discussed here, the exponents of these systems in the land of their origin did not avail themselves of the rapid strides of progress which modern medical science has made in all directions especially during the latter half of the last century and during the present century. These systems have, therefore, become obsolete, and cannot stand the modern scientific tests. They are also unsuited to the modern needs of the people. Sentiment that these systems are our ancient heritage should not be allowed to play any part in scientific matters. I am convinced that it is a waste of time, energy and public money to establish schools and hospitals for reviving old and static indigenous systems of medicine. It is absurd to teach a hybrid mixture of modern scientific and ancient systems of medicine, and to turn out half-baked medical men, who refuse to be styled as Vaids. It is tragic to note that during my visit to an Ayurvedic medical school in Gujarat the students expressed their wish to be called doctors.

During these days of scientific advancement no public leader in this country will ever dream of furnishing the army with maces [gadas], bows, arrows and chariots used by our ancestors to fight the enemy, but will equip it with modern and up-to date weapons, such as rifles, machine guns, grenades, tanks, bombers, etc., of foreign origin. I ask our leaders why they observe conservatism only in medical science, which concerns the health and life of the nation.

Instead of appointing a committee of experts to evaluate these systems I pray that the Government would take a bold step and declare a moratorium extending to a definite period of years after which the practice of indigenous systems of medicine would not be recognized, just as the rulers of China and Japan did some years ago. Some time ago the League of Nations sent a deputation of medical men to India to study its medical and sanitary conditions. During their visit to Lucknow one of them happened to be a Siamese Prince who, on being questioned about the indigenous system of medicine prevailing in his country, replied that the ancient books of that system were adorning State archives.

I am not unconscious of the fact that these systems have a great hold not only on the illiterate masses but on large sections of the intelligentia. The public conception of these systems is, however, very narrow and takes note only of the medicines used in the treatment of diseases which, being indigenous, are believed to suit the people. A qualified medical man can never be averse to the use of indigenous drugs of proved merit, some of which are even included in the British Pharmacopœia. It must, however, be noted that the description of many indigenous drugs is generally given in hyperbolic language. Various drugs are mentioned as "Ramban Davas" against particular diseases but, when put to scientific tests, some of them are not found beneficial at all. Dr. Mhaskar experimented on more than one hundred drugs, which were described as specific against snake bite, but he found none of them efficacious. It is quite natural that a scientifically trained medical man will hesitate to try on his patients those drugs, the efficacy of which has not been proved scientifically. It is, therefore, necessary to carry out research on these drugs on scientific lines, especially in medical college laboratories by co-operation of chemists, pharmacists, physiologists and physicians. In this connection I may mention that scientific research on indigenous drugs is being carried out for several years in the Tropical School of Medicine, Calcutta, and other medical and science colleges, and their results are published in medical and scientific journals. The pioneer in this line of work is Brevet Major General Sir Chopra who, in the year 1933, published a book, entitled "Indigenous Drugs of India", in which he has incorporated his experimental investigations. What is required for our country is the publication of an Indian Pharmacopœia consisting of tried, approved and standardized drugs manufactured in India, for which the Indian Medical Profession has been clamouring for the last many years. It is hoped that our national Government, which has come into existence, will fulfil our demand. My suggestion is that instead of starting Ayurvedic and Unani schools and colleges, laboratories should be established in medical colleges, where compulsory research on indigenous drugs must be carried out.

Again, mineral and organic drugs, which are now imported from foreign countries, will be known as indigenous drugs, if they are manufactured in this country. I, therefore, appeal to Indian industrialists to construct factories to manufacture such drugs under the expert supervision of chemists and pharmacists. In India, there are certain factories like Bengal Chemical and Pharmaceutical Works in Calcutta, Alembic Chemical Works in Baroda, etc., but they are not enough. Many more must be established, if the importation of foreign drugs worth crores of rupees is to be stopped. I go further and suggest that medical and surgical appliances and instruments should be manufactured in this country, which must be self-sufficient and independent of other countries.

The other argument advanced in favour of indigenous systems of medicine is that the treatment under these systems is comparatively cheaper. This is not absolutely true, as some Vaids and Hakims are known to charge exorbitant fees and to state that their treatment is only meant for rich patients. However, I do admit that modern medical science has not been popular with the people, simply because medical aid under this system is very costly for an average Indian. I would appeal to qualified medical practitioners not to forget our ancient traditions of rendering free medical aid, especially to the poor, and not to prescribe costly imported proprietary and patent drugs and injections, unless absolutely necessary. They must not help unwittingly manufacturers of the proprietary drugs, which are mostly pharmacopœial drugs sold and advertised under fanciful names. Many pharmacopœial drugs and even sera and vaccines are now manufactured in India, and are comparatively cheaper, and also equally efficacious. I would suggest especially to young medical practitioners to start medical stores on a co-operative basis, from where they can purchase medicines, etc., for the use of their own dispensaries so that they may be saved from paying excessive prices to exploiting druggists or chemists for the purchase of their requirements in medicines, appliances, instruments, etc.

If the well-to-do people of our province were to start medical institutions similar to missionary ones for supplying modern medical and surgical treatment to the public at nominal fees, I am sure that many selfless and service-minded young medical practitioners would come forward to serve such institutions, if they are assured of a reasonable salary and education and maintenance of their children like missionary doctors.

It is generally assumed that every one, irrespective of sex, age or occupation, living in urban or rural areas, has a birth right to obtain a benefit from the best and most upto date medical treatment; hence I would request the Government to establish a National Health Service, curative and preventive, on the lines suggested in the Beveridge report for the benefit of the people of the British Isles. If this is not possible, the Provincial Governments may introduce sickness insurance, panel system of medical practice or Public Health Service as recommended by the Bhore Committee.

Medical relief in rural areas is a very difficult problem. Efforts have been made to solve it by opening permanent dispensaries in certain villages, by starting travelling dispensaries and by subsidizing private medical practitioners, but not with success. Owing to lack of facilities for the education

of their children, want of efficient transport service and other social amenities, qualified medical men are not attracted to settle down in villages. Moreover, owing to extreme poverty, gross ignorance and superstitious beliefs, an average villager is averse to modern medical treatment. During sickness he usually seeks the assistance of a brahmin, *sadhu* or *fakir* to propitiate some presiding deity or of a man versed in witch-craft to exercise a ghost. We are, however, glad to hear that Honourable Dr. Gilder said recently in a meeting of the Bombay Legislative Council that the question of medical relief in rural areas was engaging the attention of the Government who were preparing an elaborate scheme for medical relief in rural areas. It is fervently hoped that the scheme will aim at the general village uplift.

The citizens of Ahmedabad take great pride in their municipality being the foremost in India. During non-co-operation days the Ahmedabad municipality was the first to defy the Government authorities and to forgo the Government grant for primary education. In the year 1942, the municipality was again the first to pass the "quit India" resolution. This year it has also maintained its reputation of being the first in India by starting a bus transport service for the benefit of the public, but it does not seem that the municipality has endeavoured to keep up that reputation as far as the general sanitation of the city is concerned. There is still scarcity of pure water supply in many parts of the city, especially in the upper stories of the buildings. The water carriage system, which is the cleanest, quickest and most sanitary method of removing night-soil, is not yet introduced in Ellis Bridge and other suburban areas in spite of the frequent demands from the residents. Notwithstanding our great solicitude for poor Harijans, they are still required to clean latrines with their hands, to carry night-soil in open drums on their heads and to deposit it on the road side, where it is a source of nuisance and annoyance, especially to the people going out for a walk in the early mornings. Flies and mosquitoes flourish in the city with impunity. Preventible diseases, such as malaria, typhoid fever, diarrhœa, dysentery, tuberculosis, etc., are still raging in our midst, and taking a heavy toll of life. It is not known if any serious attempt has been made to reduce the incidence of these diseases. There is no appreciable reduction in the infant mortality rate, which is about 260 per 1,000 registered births as against 156 in India in 1939, 53 in England and Wales in 1938 and 32 in New Zealand in 1937. In the Ellis Bridge area, vehicular traffic on some roads, which are not properly metalled and are not regularly watered, raises clouds of dust which are very harmful.

When such are the sanitary conditions of our city, a man in the street is wondering why there was such an inordinate hurry on the part of the municipality to start a bus transport service at an initial cost of about twenty-five lacs of rupees in spite of the warning given by Mr. Manu Subedar. With the help of the Regional Transport Officer the municipality could have forced the Morris Transport Service to bring about the desired improvement in their bus service. But it seems that the municipality was prompted probably by the business instinct, so innate among Gujaratis, especially Ahmedabadis, to help the rate payers by obtaining large profits from the bus service. Heavens would not have fallen, had the bus transport service been started a few years after the improvement of the general sanitation. But the ways of our municipality like those of God are inscrutable.

In conclusion, I implore every medical practitioner to remember the Hippocratic (Unani) Oath and the Vedic Principles of Medicine and to observe medical etiquette in his relations with the State, with other practitioners and with his patients.

In his relations with the State, the medical practitioner must render to Cæsar the things which are Cæsar's, that is, must obey all lawful authority. When in doubt as to his proper course of action in any given circumstance the practitioner should ask himself what action is best in the interest of the public.

In dealing with other practitioners, the medical practitioner must try to obey the golden rule, "whatever ye would that men should do to you, do ye even to them."

With regard to his conduct towards his patients, the medical practitioner must bear in mind that it is his duty to place the interests of his patients above all considerations, and do his utmost to promote their welfare. In all dealings with his patients the interest and advantage of their health should alone influence his conduct towards them. As his trust in the profession is great, so the obligation to be true is greater, and any signal failure in this respect will be wholly discreditable and inexcusable. The medical practitioner must not only deal honestly with his fellowmen, but must show more than usual benevolence towards them, so that he may be able to maintain the honourable tradition by which the doctor is regarded as the friend of all persons, irrespective of race, creed or social position.

NOTES AND NEWS

COLLEGE OF PHYSICIANS & SURGEONS, BOMBAY

The College of Physicians and Surgeons of Bombay have organised a series of post-graduate lectures in the subjects of Medicine, Surgery, Midwifery and Gynæcology, Ophthalmology and Child Health.

The object of organising these lectures is to impart higher knowledge to the candidates going up for the post-graduate diploma examinations. The lectures will also be open to the members of the Medical Profession and to the students interested in the subjects.

Details regarding the lectures may be obtained from the Secretary of the College, Hospital Avenue, Parel, Bombay.

* * * * * *

The College of Physicians and Surgeons of Bombay held the F.C.P.S., D.G.O. and D.C.H. Examinations in the month of April.

The following candidates have passed the F.C.P.S. Examination:—

Iyer, Subramani Ganapathi; Mehta, Thakershi Khushaldas; Vora, Dharamdas Damodardas; Bhadre, Parmakar Balkrishna; Kale, Vishnu Gurunathrao; Welinkar, Waman Narayan; Gandhi, Kamal Ranchhoddas (Miss); Patel, Dina Nanabhoy (Miss); Patel, Vithalbhai Goverdhanbhai, and Parkar, Diwakar Shantaram.

The following candidates have passed the D.G.O. Examination:—

Bhandari, Vidya (Miss); Lalvani, Sundri Harjasrai (Miss); Patel, Kamala Motibhai (Miss); Patel Ramanlal Chhotalal; Patel, Sushila Govindlal (Miss), and Sexana, Chandravati Bansgopal (Miss).

The following candidates have passed the D.C.H. Examinations:—

Deodhar, Parmeshwar Damodar; Deshpande, Vasant Shivaram; Doshi, Kamla Talakshi (Miss); Meisheri, Dhanluxmi Vershi (Mrs.); Shroff, Mira Narsidas (Miss), and V. Gopalan Ezhuthachan.

UNITED PROVINCES MEDICAL COUNCIL

Extracts from the minutes of the meeting of the United Provinces Medical Council held in its office at Lucknow on March 26, 1947, at 11 a.m.:

Resolved unanimously that the following resolution passed in June, 1946, by the Madras Medical Council be endorsed:

"This Council resolves to request the Central Government to suitably amend the Indian Medical Council Act to make provision for an elected representative of each of the Provincial Medical Councils in India to serve on the Medical Council of India."

The following resolution was passed:

"Resolved that the Director of Public Instruction be requested to appoint the registered medical practitioners, both graduates and licentiates, as examiners in Physiology and Hygiene in the Intermediate Examination of the United Provinces Education Board. Further resolved that the representative of this Council on the said Board be requested to press this demand in the meetings of the Board."

THE MEDICAL SERVICES OF THE RED ARMY

Academician A. Abrikosov writes: On the 29th anniversary of the Soviet army, medical men recalled with great satisfaction the glorious path which they have travelled with the Army.

The close contact between Soviet medicine and the Army made itself felt with particular force during World War II. The successes of Soviet medical men in serving the army are characterised by three main indices: the high percentage (73%) of wounded who returned to the ranks, the low mortality (1·1%) in the rear hospitals, and the absence of epidemics in the country.

The achievements of Soviet military medicine were based on the outstanding successes gained by the public health services and in particular medical science in the USSR. In 1913 there was only one medical research institute in Russia. In 1940 the USSR had 223 such institutes staffed by some 20,000 scientific workers.

The aggressive policy of Hitlerite Germany and imperialist Japan forced the Soviet public health authorities to take a number of measures in preparation for an enemy attack. Many doctors taking advanced courses acquired a second speciality—surgery. Medical attendant personnel received special training in surgical assistance, giving anesthetics and setting plaster-casts. In the prewar years, the organisations of the Red Cross and the Red Cresent trained several thousand stretcher-bearers and ward attendants:

Blood banks were established on a large scale throughout the country.

The considerable growth of medical personnel permitted the USSR to organise its hospital network during World War II on the principle of specialised treatment. In addition to the general surgical and therapeutic hospitals, special hospitals were formed for the treatment of neuro-surgical, urological and other specific cases. All of them were equipped with up-to-date medical appliances and had large supplies of blood-plasma, blood-substitutes, serums and various preparations.

The Soviet Land sent its best doctors and nurses to serve the wounded. Some 96·6% of the head surgeons in hospitals had over 10 years experience to their credit; over 50% held the degree of doctor of medical sciences, and 25% of master of medical sciences.

In order to ensure the best possible services in the rear hospitals, the post of chief surgeon and chief therapeutist was instituted in all union and autonomous republics, territories and regions. These posts were filled by eminent Soviet medical men. The Head Surgeon of the Soviet Army was the late Academician Nikolai Burdenko, who frequently visited the front in person, and one of his assistants was Professor Sergei Yudin.

The Military Hospital Committee under the Scientific Medical Council in the Ministry of Public Health of the USSR united and controlled the research work of the hospitals. Plenary sessions of the hospital councils of the different republics and regions were called periodically for an exchange of notes and discussion of the most important clinical problems.

The research institutes of the Ministries of Public Health of the USSR, RSFSR, the Ukrainian SSR and other republics achieved important successes during the war. In the first place, mention must be made of the efforts of the late Academician Burdenko in the sphere of diagnosis and treatment of wounds and injuries of the central nervous system; the application of tissue-therapy by V. Filatov, member of the Academy of Medical Sciences of the USSR; the study of the wound process by I. Rufanov, member of the Academy; the new methods of treating frostbite elaborated by S. Girgolav, member of the Academy; the original plastic facial operations performed by professors S. Rauer and N. Mikhelson: and the therapy of suppurative complaints and wounds proposed by professor V. Voino-Yasenetsky.

Blood transfusion was made use of on a huge scale. The personnel of the Central Institute of Blood Transfusion, headed by A. Bagdasarov, elaborated a new method permitting the transfusion of plasma or serum instead of blood. This preparation can be stored over a long period of time and transported by any means to any distance.

During the war, Soviet medical workers elaborated a number of effective prophylactic and healing preparations. Professor N. Kluyeva of the Third Moscow Medical Institute proposed a combined vaccine to be used simultaneously against different diseases. The production of penicillin was perfected. The output of anti-tetanus serum and dysentery bacteriophage was increased many times as compared with the prewar period.

During the war Soviet scientists made valuable contributions towards our knowledge of metabolism, the blood, the alkaline reserve, and also the study of the central nervous system under conditions of lowered barometric pressure. This was of great importance when treating pilots and submarine-men.

The Soviet Army played a decisive role in the rout of Hitlerite Germany. In this service, a part of the credit belongs to the medical men who fought so selflessly for the life and health of every Soviet soldier.

Soviet people value the services and works of their medical men. Vivid proof of this is the election of many medical scientific workers to the Supreme Soviet of the USSR; amongst the newly-elected deputies are Academician E. Pavlovsky; O. Podovysotsky, corresponding member of the Academy of Sciences of the USSR; V. Mysh, M.D.

A number of medical men were elected deputies to the Supreme Soviets of the Union and Autonomous Republics: A. Palladin, President of the Academy of Sciences of the Ukrainian SSR; the well-known Azerbaijan Surgeon M. Topchibashev, Stalin Prize Winner; Professor N. Kluyeva; V. Filatov, member of the Academy of Medical Sciences of the USSR; M. Melnik, corresponding member of the Academy of Medical Sciences of the USSR and many others.—*Tass-News Agency of the U.S.S.R.*

CANCER TREATMENT IN AUSTRALIA

Charles Lynch writes:—Radium provided by Government funds; centralised laboratories for the production of radon; radiotherapy centres in all the States; and facilities for the care of patients, including free treatment when necessary, are among the methods employed by Australia in combating cancer.

Treatment of cancer in Australia is by surgery, by x-rays, or by radium, or by a combination of two or all of these. The Federal Government, through its Department of Health, has played a prominent part in subsidising and organising treatment activities, particularly in the provision of radium. Radium purchased by the Commonwealth Government at a cost of Rs. 10,70,833-5-4 has been distributed on loan to hospital centres throughout Australia.

Although radium has been produced in Australia, production costs have operated against its production, and the main source of supply is now Canada.

Under the terms of the loan agreement between the Commonwealth and various medical centres, treatment at well-equipped clinics is available to all requiring it, irrespective of their ability to pay.

In 1931, the Australian Cancer Conferences convened annually by the Commonwealth Department of Health were inaugurated. At these conferences plans have been made for the solution of problems and for the determination of future lines of development.—*Australian Medical Newsletter.*

SPECIALIST TRAINING FOR DOCTORS

L. E. Sessel writes: Doctors in Britain are to be enabled to enlarge their professional knowledge and improve their skill on more systematic lines than hitherto. Both specialists and general practitioners will benefit by the opportunities available.

With this object the British Postgraduate Medical Federation has been created in the capital as a "school" of the University of London. Its purpose is to provide in London organised and correlated facilities for postgraduate teaching and research for qualified medical practitioners of the United Kingdom and from overseas countries, and to co-operate with other universities and medical schools similarly engaged.

Sir Francis R. Fraser, a distinguished physician, is the first Director of the Federation, which at once becomes the foremost institution of its kind in the United Kingdom. In a recent paper he read at Edinburgh, which bears a high reputation everywhere as a centre of medical training, he discussed the suitability of London not ony as a centre of education for British doctors but as an international school to which numbers of foreign medicos would desire to proceed.

Postgraduate Education—Postgraduate medical education has, of course, existed as long as the profession of medicine, but it has engaged serious attention in Britain in organised form only since the beginning of the century. Obviously it is essential for specialists, and it is hardly less desirable for the general practitioner though the public's daily calls on his services, either as private or "panel" (*i.e.*, medical insurance) patients, often make it more difficult for him to find time for postgraduate study.

London has had its British Postgraduate Medical School at Hammersmith in the suburbs since 1935. It has done very useful work, canalizing effort in the capital and the Home Countries. Facilities there and on a smaller scale elsewhere are now to be extended under the direction of the new Postgraduate Medical Federation. Preferential consideration will generally be given to British ex-Service doctors in the first instance who are bent on additional medical education; but, with the satisfaction of these requests, the door will be freely open to doctors from other countries, many of whom are anxious to put in a course of study in London at the present time.

Comprehensive Field—The Federation will provide (*i*) training for prospective specialists, supplementing the work of the unndergraduate medical schools, (*ii*) advanced revision for practising specialists, (*iii*) instruction for medical practitioners who, though not specialists, desire more detailed knowledge of any branch of medicine, and (*iv*) instruction for general practitioners. A pretty comprehensive field of activities is thus embraced.

It will include the departments of general medicine, general surgery, obstetrics and gynæcology, and pathology of the existing Hammersmith Postgraduate School, also the institutes associated with several London hospitals which specialise in the treatment of sick children, diseases of the nervous system, and throat, nose, ear and eye troubles. It is hoped to include an institute of psychiatry in the immediate future.

Expansion Programme—Associated with the Federation in providing postgraduate education are the teaching schools of many other important hospitals, which concentrate on the treatment of diseases of the skin, of tuberculosis and the chest, heart, genito-urinary and orthopædic troubles. These schools are being expanded and developed as circumstances permit in order to include them as federated institutes in due course.

All these establishments are in London, which is far better equipped for postgraduate medical education than any other centre in Britain. It shelters 12 great voluntary hospitals associated at present with undergraduate medical schools, 30 other large voluntary hospitals and innumerable smaller ones, special hospitals in every branch of medicine, and the largest and most efficient local authority hospital system in the world. It presents an unrivalled field for observation and study.

In the opinion of the Director of the Federation the ideal arrangement in London would be a general hospital and postgraduate medical school with specialist hospitals grouped around it, constituting a postgraduate medical centre. There would be residential accommodation and other amenities, together with proper administrative offices. These desirable objects are, however, unattainable at present, especially in view of postwar building and other problems. But the idea has not been abandoned, and an influential committee is considering what parts of the proposed centre should be completed first in order that the requirements of visiting graduates expected from overseas to take up courses may be met.

Hospital Appointments—Reference has been made to the facilities that are to be extended in the first instance to ex-Service doctors. This arises from a Government scheme of assistance. They are being given hospital appointment for a period of six months in which to refresh their knowledge of various branches of medicine, and these appointments are extended for further periods for doctors selected for training as specialists.

The hospitals have been asked by the Ministry of Health to create some whole-time appointments for those whose specialist training is completed, as distinct from the honorary appointments hitherto held by trained speciaists who attend the hospitals and deal with new variabilities in disease that constantly attract expert attention. The whole-time appointments will be made in anticipation of the coming into force of the important National Health Service Act in April, 1948.—*U. K. Publicity Services.*

OBITUARY

Rai Bahadur Dr. B. N. VYAS

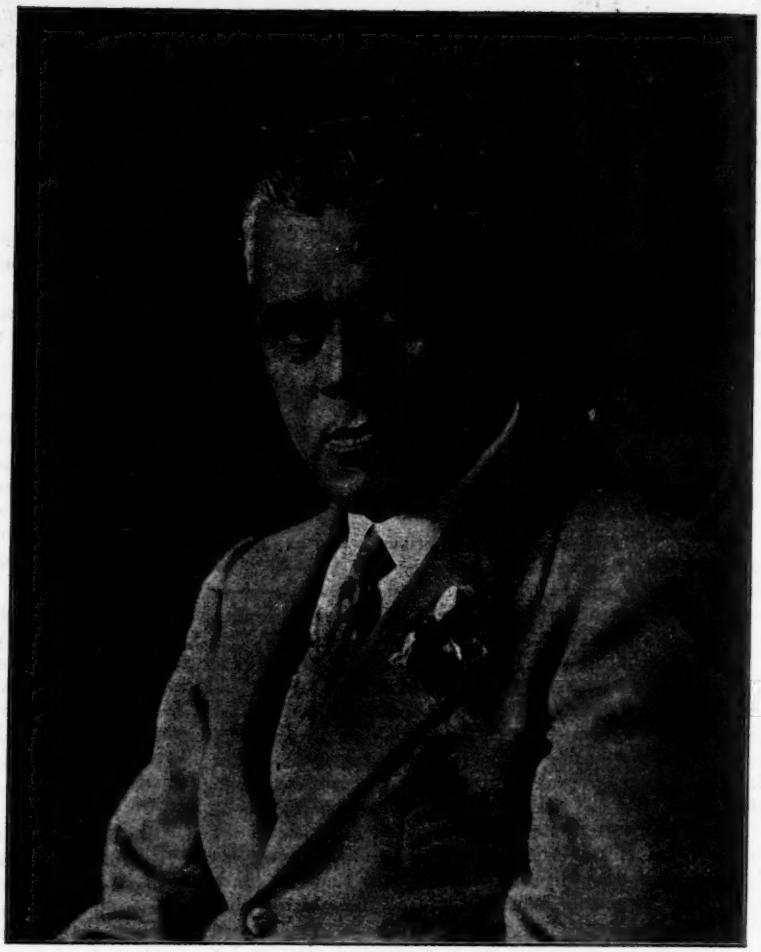
We regret to announce the death of Rai Bahadur Dr. B. N. Vyas from cerebral hæmorrhage.

The late Doctor Vyas was not only a prominent member of the Indian Medical Association, but he was a person of all-India reputation and multifarious activities. He was the President of the Indian Medical Association, for 1936-37 having presided over the deliberations of the XIII All-India Medical Conference held at Karachi in 1936 during Christmas week. Dr. Vyas was also President of the U.P. Provincial Branch of the Indian Medical Association, and of the Lucknow Branch. He was the Vice-President of the Medical Council of India, a member of the U.P. Medical Council and for sometime the Treasurer of the University of Lucknow.

Dr. Vyas practically died in harness and all concerned will be extremely sorry to miss Dr. Vyas who used to render ungrudging help in furthering the cause of all institutions and organisations with which he was connected.

Dr. Vyas possessed a charming personality. He could transform an atmosphere of monotony into one of hilarity and full of interest by his enlivening discussions, humour and repartees.

The Members of the Lucknow Branch of the Indian Medical Association at a special meeting passed a resolution condoling the death of Vyas and sent its heartfelt condolence to the bereaved family.



Late Dr. B. N. Vyas

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